

The Computer Science Senior Capstone Experience

CSE498 Collaborative Design

Department of Computer Science and Engineering

Michigan State University

Fall 2008

Professor Wayne Dyksen

Course Objectives

- Complete a Large Software Project
 - Architect
 - Implement
 - Test
 - Document
 - Deliver
- For a Client
- From "Scratch"
- In 15 (Short) Weeks

Course Objectives

- Build and Administer Systems
- Use Advanced Tools And Environments
- Integrate Computer Science Knowledge

Course Objectives

- Work In A Team Environment
- Develop Communication Skills
- Develop Interview Talking Points

All-Hands Meetings

- MW, 3:00-3:50pm, 175 COM
- Presentations By
 - Professor
 - Teams
 - Status Reports
 - Alpha and Beta Demonstrations
 - Formal Presentations
 - Project Videos
 - Guest Speakers

All-Hands Meeting Agendas

08/25:	Course Overview / Skills Inventory	10/22	Teams: Status Reports &/or Demos
08/27:	Technical Specifications / Team Assignments	10/27:	The Project Video
09/01:	Labor Day, No Meeting	10/29:	Camtasia Demo
09/03:	Project Schedule & Risk	11/03:	Teams: Beta Demonstrations
09/08:	Teams: Status Reports	11/05:	Teams: Beta Demonstrations
09/10:	Prototyping	11/10:	Teams: Beta Demonstrations
09/15:	Teams: Technical Specifications / Schedule	11/12:	Teams: Beta Demonstrations
09/17:	Teams: Technical Specifications / Schedule	11/17:	Ethics
09/22:	Teams: Technical Specifications / Schedule	11/19:	Intellectual Property and Copyright
09/24:	Resume Writing & Interviewing	11/24:	Teams: Status Reports &/or Demos
09/29:	Creating & Giving Presentations	11/26:	Teams: Status Reports &/or Demos
10/01:	Career Gallery	12/01:	Teams: Project Videos
10/06:	Teams: Alpha Demonstrations	12/03:	Teams: Project Videos
10/08:	Teams: Alpha Demonstrations	12/04:	Design Day Setup
10/13:	Teams: Alpha Demonstrations	12/05:	Design Day
10/15:	Teams: Alpha Demonstrations	12/11:	Teams: Project Videos
10/20:	Teams: Status Reports &/or Demos		

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Auto-Owners Insurance

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Mark Hempsted

Scott Lake

Heidi Dowling

Fern Shaffer

Lateresa Baker

Auto-Owners Insurance Clients



Michael Korynski

Tom Randall

Ashleigh New

Jonathan Lindsey

Team 1 Auto-Owners Insurance

Team Photo

Team 1 Auto-Owners Insurance

Project Overview

Recruiting Contact and Events System

- System to Track University and College Engagement
 - Recruiting Events
 - Career Fairs
 - Interviews
 - Advisory Board Memberships
- Features
 - Web Interface with SQL Server Backend
 - Synchronization with Microsoft Outlook
 - Summary Reports
- Technologies
 - C# / .NET
 - Microsoft Exchange / Outlook
 - SQL Server

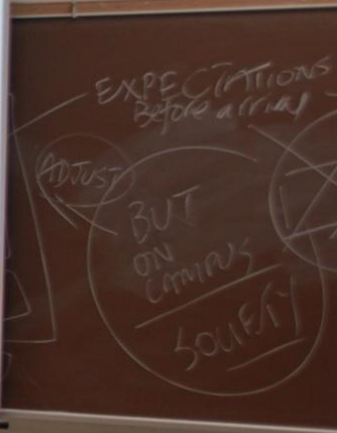


Functional Specifications

- Extract data from SQL database and import it into the web interface.
- Create a web interface allowing users to log in and see their events.
- Individual parts of event data can be changed after being created.
- Be able to view event reports based on search criteria.

Team 1: Auto-Owners Insurance

Team 1 Auto-Owners Insurance
Technical Specification Presentation



Team 1 Auto-Owners Insurance Architecture Illustrated



Server

SQL 2005
Database



Internet



Computer

Project Schedule

Team 1: Auto-Owners Insurance

1. Review screen mockups with Auto-Owners Insurance
 - a) Develop an understanding of their desire of the applications look and feel
 - b) September 18, 2008
2. Develop database
 - a) Create and maintain the database for application
 - b) September 21, 2008
3. Revise screen mockup
 - a) Based on previous critique develop new screen mockups
 - b) September 23, 2008
4. Review screen mockups with Auto-Owners Insurance
 - a) Review new layout based on previous critique
 - b) September 25, 2008

Team 1 Auto-Owners Insurance
Technical Specification Presentation

Auto-Owners Insurance

Calendar Contacts Reports

October 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	
5	6 9:00 AM - 5:00 PM MIDWEST POWER INCORP.	7	8	9	10	11
12	13	14	15 5:30 AM - 7:00 PM	16	17	18
19	20	21	22 7:30 PM - 9:30 PM From 8:00 PM	23 8:45 PM - 10:45 PM MIDWEST EVENT	24 7:30 PM - 9:30 PM	25

Team 1 Auto-Owners Insurance
Alpha Demonstration

Auto-Owners Insurance

Calendar

Contacts

Reports



Personal

World

Filter

Event Name:

Event Type:

Organization:

Recruiter:

State:

Attending:

Filter

Reset

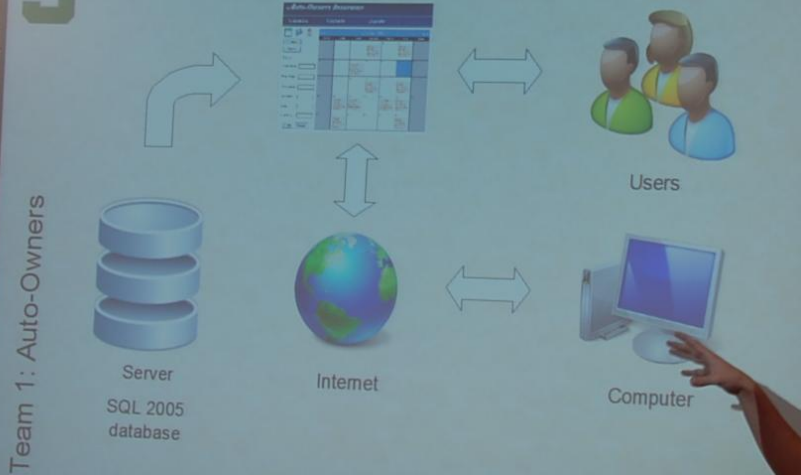


October 2008



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 10:00 AM - 1:00 PM Recur Event that has a really long name	2	3 10:00 AM - 1:00 PM Recur Event that has a really long name	4
5	6	7 10:00 AM - 1:00 PM Recur Event that has a really long name	8	9	10	11
12	13	14	15 10:00 AM - 1:00 PM Recur Event that has a really long name	16	17 10:00 AM - 1:00 PM Recur Event that has a really long name	18
19	20 10:00 AM - 1:00 PM Recur Event that has a really long name	21 10:00 AM - 1:00 PM Recur Event that has a really long name	22	23 10:00 AM - 1:00 PM Recur Event that has a really long name	24 10:00 AM - 1:00 PM Recur Event that has a really long name	25
26	27 10:00 AM - 1:00 PM Recur Event that has a really long name	28	29	30	31 10:00 AM - 1:00 PM Recur Event that has a really long name	

S Team 1: System Architecture



Team 1 Auto-Owners Insurance
Alpha Demonstration

Auto-Owners Insurance

Calendar

Contacts

Reports

Search:

Title:

Type:

Location Notes:

Event

- Title
- Type
- Organization
- Location Notes
- Date
- Time
- Attending
- Deadline
- Date Registered
- Date Confirmed
- Cost
- Paid
- Payment Type

Resumes

- Good
- Satisfactory
- Marginal

Organization

- State

Contacts

- Name

Print Results

Cancel

Reset

Delete

Save

Load

S Team 1: Project Additions

- **Filtering Functionality**

- World and personal
- Event type, organization, recruiter, state, attending

- **Report Functionality**

- Detailed report viewing with custom searches

- **Calendar Functionality**

- Month view change by year
- Custom event details information

- **Organization and Contact Functionality**

- Edit/Delete contacts and organizations

- **Event Functionality**

- Added recruiters, task lists, and equipment lists


Team 1: Auto-Owners

Team 1 Auto-Owners Insurance
Beta Demonstration



S

Team 1: Final To Do



- Find and fix bugs
- Present final application to Auto-Owners
- Project video
- Comment and revise code for Auto-Owners employees
- Create document that includes coding methods and a "how to" section for Auto-Owners employees
- Update and revise technical specification document
- E-mail notifications and reminders

Team 1: Auto-Owners

Team 1 Auto-Owners Insurance
Beta Demonstration





Select Country/Language

BA stock price 64.45 [- 0.32] at 4:13 PM ET on Aug 15

Quick Links:

- [Commercial Airplanes](#)
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787 DREAMLINER

Milestones

Special Feature:

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[787 Dreamliner Power On](#)



In The News:

Boeing Delivers Super Hornet Proposal to Brazil For F-X2 Competition

Boeing and Seal Dynamics Sign Contract for Innovative Supply-Chain Solution

Boeing American Airlines



Jonathan
Marjamaa

Lorne
Mitchell

Don Winter

Boeing Clients

Michael
Williams

Jayson
Vincent

A group photo of four young men in an office setting. Three are standing in the back row, and one is sitting in the front row. They are positioned in front of a large window that looks out onto a building and trees. A computer monitor is visible in the foreground, displaying a document titled 'Functional Specification' with a bullet point 'User Can Load Files'.

Jeff Winship

Michael Jeffery

Daniel Briggs

Team 2 Boeing
Tom Pytleski
Team Photo

Team 2 Boeing

Project Overview

KML Urban Scene Builder 2008 (KMLUSB 2008)

- System for 3D Geometrical Scene Building
 - To Be Used by Boeing Phantom Works
 - Provide Scenery for Boeing Simulation Software
- Features
 - Landscapes
 - Buildings
 - Roads
 - Data points
 - Etc.
- Technologies
 - Google Earth
 - OpenGIS KML Encoding Standard (OGC KML)
 - LUA 3-D Model Scripting



S Functional Specifications

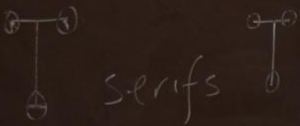
- User can draw the footprint and specify the properties of a building.



Team 02: Boeing

Team 2 Boeing

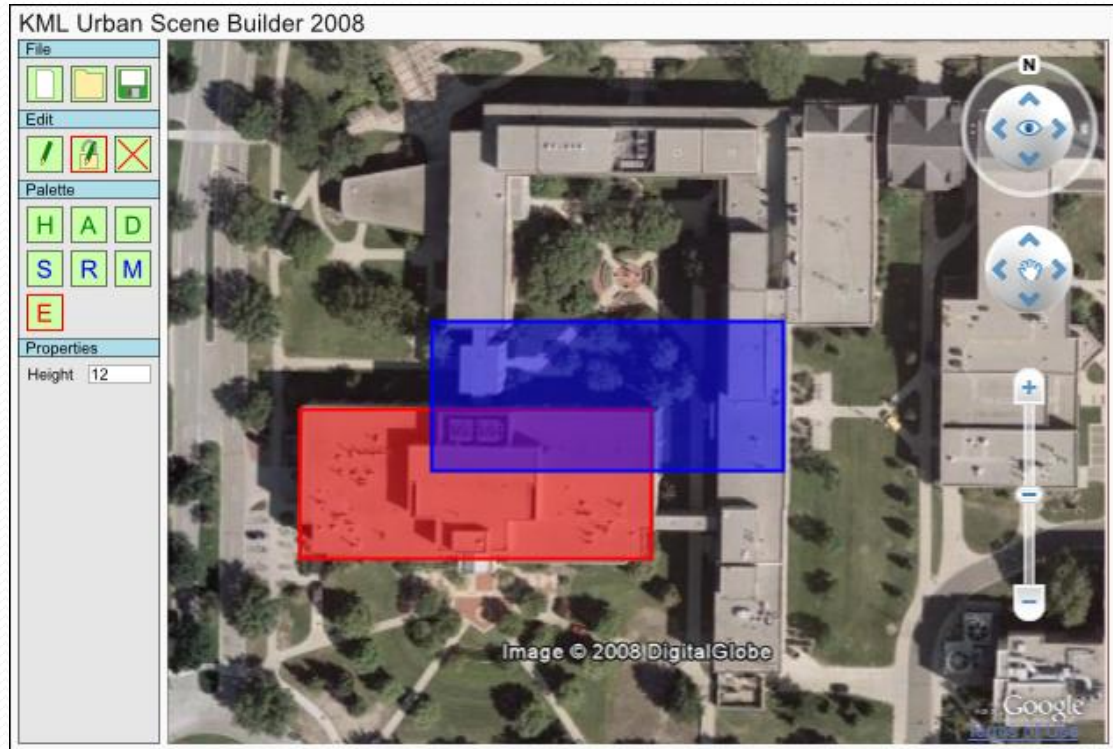
Technical Specification Presentation



Team 2 Boeing

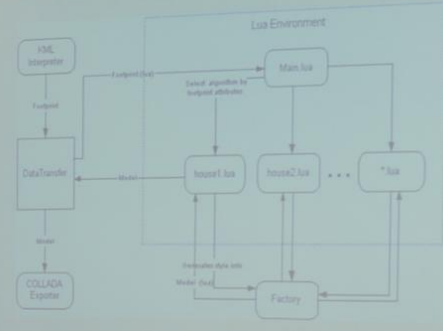
Functional Specifications

- User Can Move Building Footprint



S Architecture Illustrated

• 3DMC DFD



Team 2: Boeing

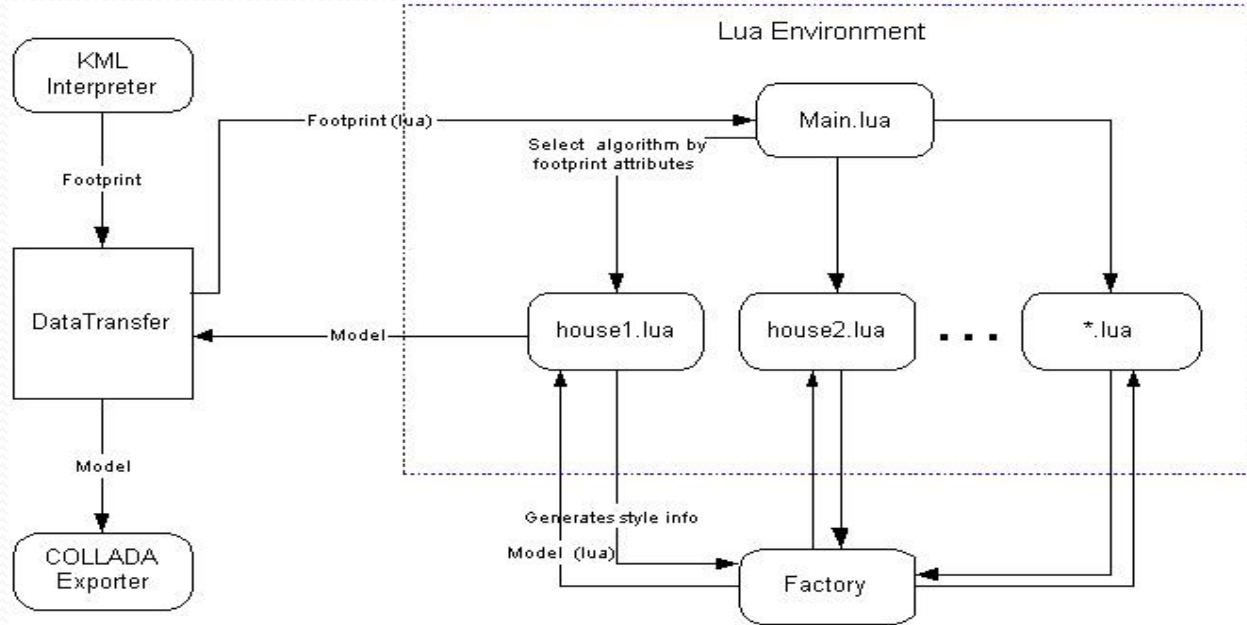
Team 2 Boeing
Technical Specification Presentation

EXPECATIONS BEFORE
Person
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Team 2 Boeing

Architecture Illustrated

- 3DMC DFD





S Risks

- Diagnostic Geometry

Team 02: Boeing

Team 2 Boeing
Technical Specification Presentation

S Project Overview

- Boeing simulates urban warfare situations
- These simulations require complex 3D environments
- Having artists manually build these environments is costly
- KMLUSB 08 will procedurally build 3D urban environments from user supplied building information (discussed in next slide)

Team 02: Boeing



Two men at a podium. One man in a dark shirt is operating a laptop, while the other man in a light-colored polo shirt stands next to him.

Two men standing near a chalkboard. One man is wearing a dark striped polo shirt and the other is wearing a light blue button-down shirt and khaki pants.

Team 2 Boeing
Alpha Demonstration

KML Urban Scene Builder 2008

File

Edit

Palette

Properties

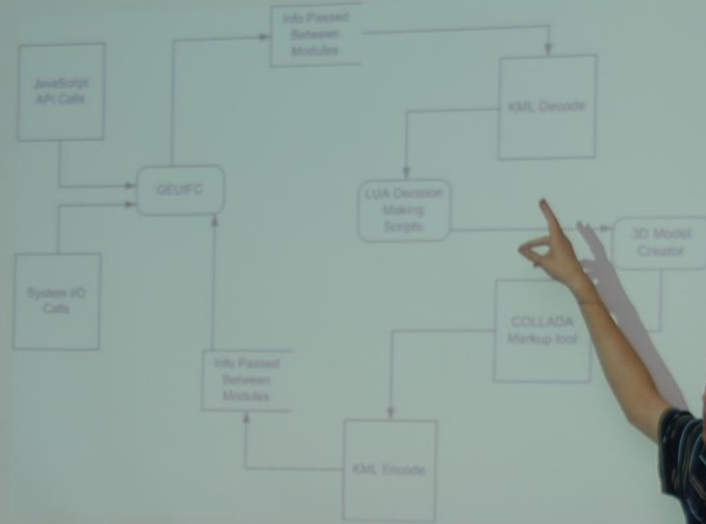
Height



S

System Architecture

Team 02: Boeing



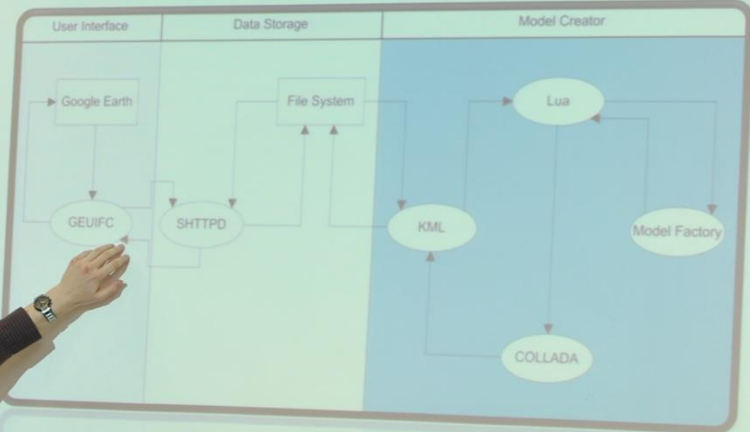
Team 2 Boeing
Alpha Demonstration

Prologue I

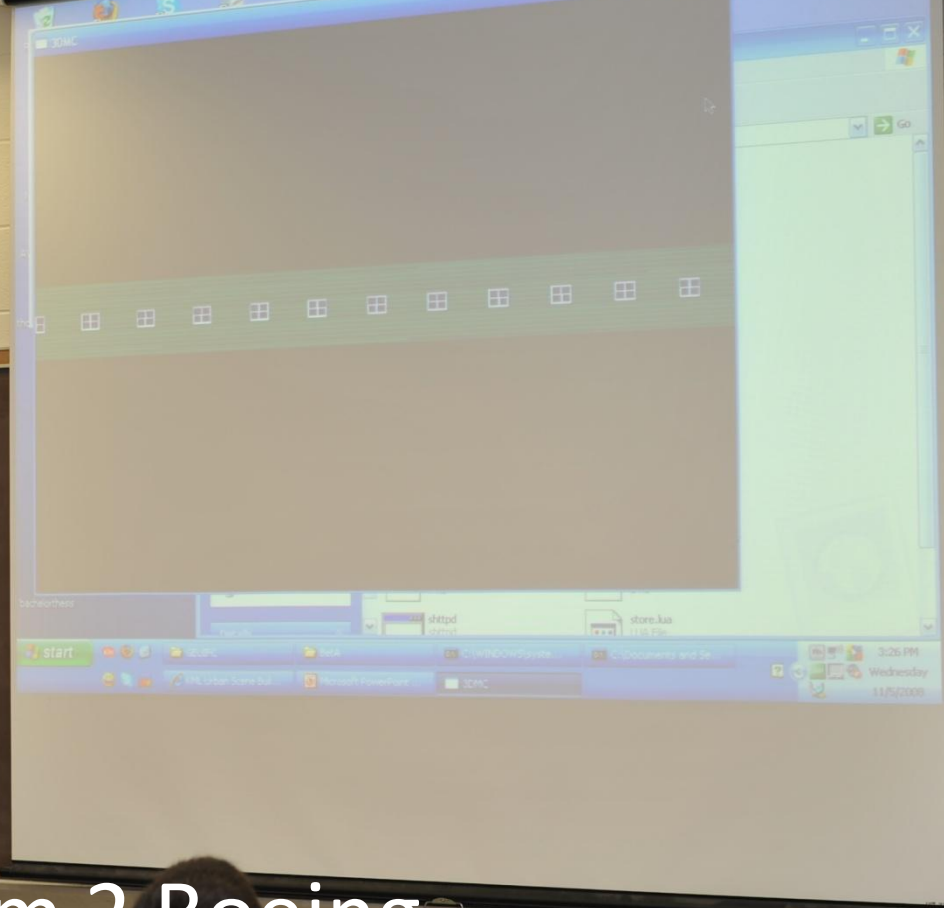
- An increasingly sophisticated insurgency requires sophisticated combat tools
- Boeing simulates urban combat scenarios
- Simulations require complex 3D environments
- Asking artists to build these environments is costly
- The solution is the KMLUSB 2008

Team 2 Boeing
Beta Demonstration

Chapter 2: Getting Together



Team 2 Boeing
Beta Demonstration



Team 2 Boeing Beta Demonstration





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Hayward Little

Paul Van Hese

Chrysler Clients



Meshal Alsahli

David Ackerman

Julian Simioni

Taylor Marshall

Team 3 Chrysler
Team Photo

Project Overview

Performance Feedback System (PFS) Dashboard

- Existing Performance Feedback System
 - Captures Quality Metrics for Each Vehicle During Production
 - Mainframe-Base
 - Generates Static Reports via Terminal and Web
- PFS Dashboard
 - Real-Time Visualization of PFS
 - Highlights Key Process Indicators
 - Quality Status-At-a-Glance
 - Customizable Based on User Needs
- Technologies
 - Java
 - Javascript
 - XML
 - SQL
 - IRAD 7.0
 - COBOL



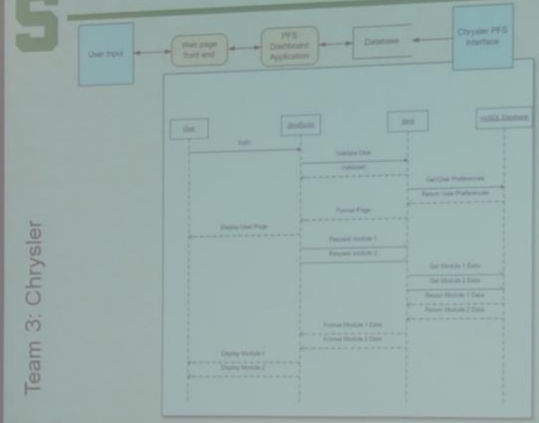
S Project Overview

- Chrysler PFS Dashboard provides "feedback at a glance" for assembly plant quality issues.
- Similar to iGoogle or myYahoo functionality
- Displays configurable modules on screen for all types of users at Chrysler
 - Team leader on plant floor
 - Manager in office environment
 - Load of approximately 100 concurrent users
- Integrates into current reporting system

Team 3: Chrysler

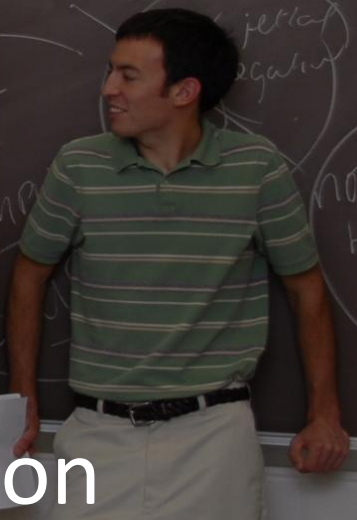
Team 3 Chrysler
Technical Specification Presentation

S Architecture Illustrated



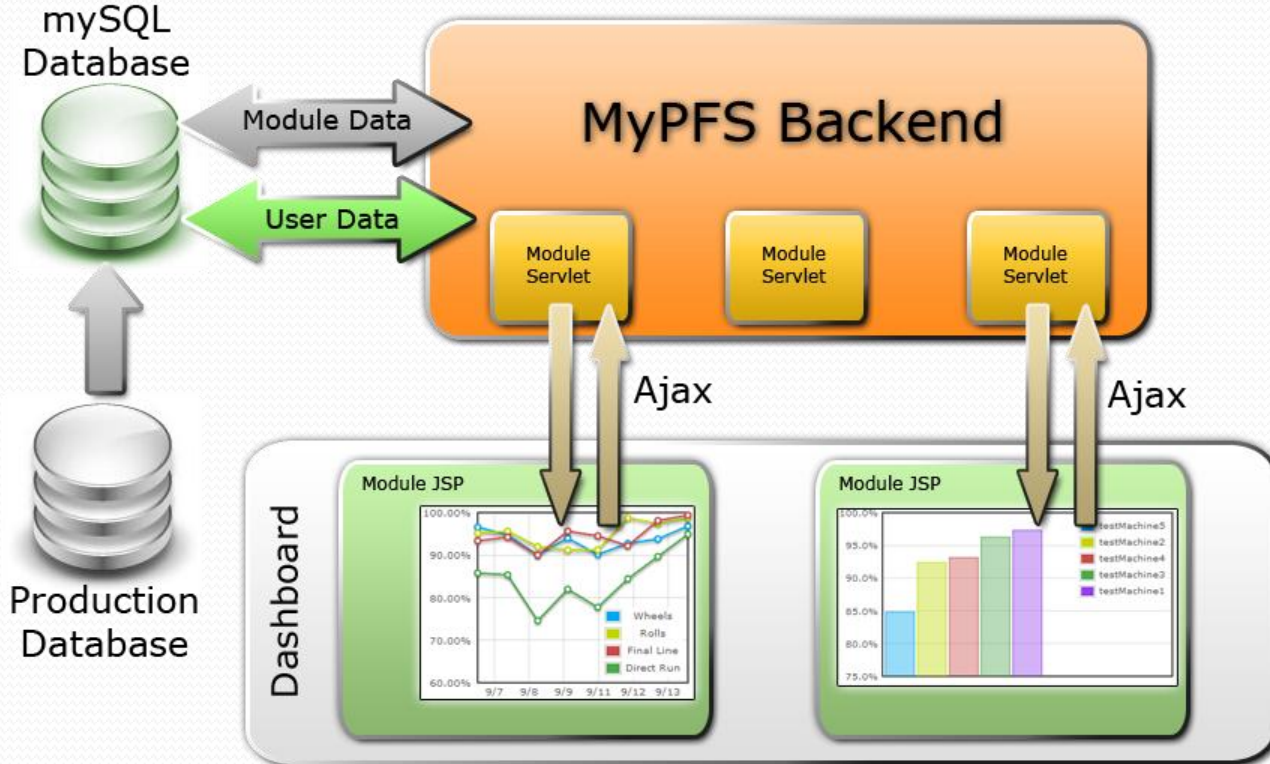
Team 3 Chrysler

Technical Specification Presentation



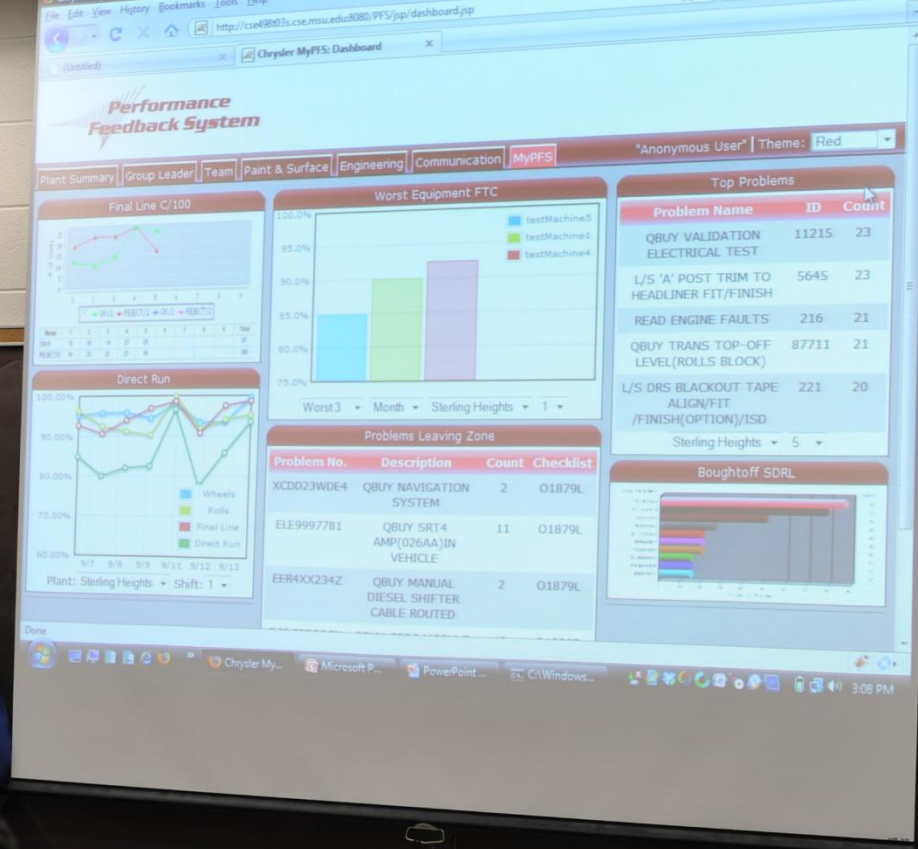
Team 3 Chrysler

Architecture Illustrated



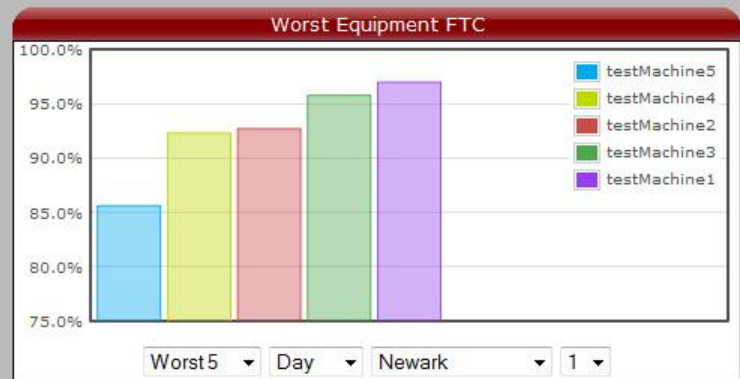
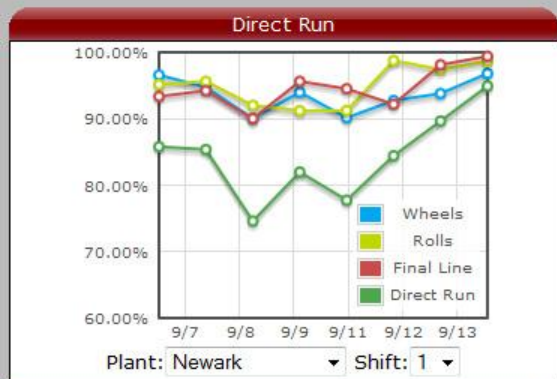


Team 3 Chrysler
Technical Specification Presentation



Team 3 Chrysler Alpha Demonstration

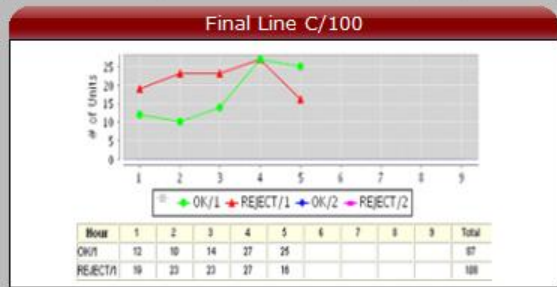




Top Problems

Problem Name	ID	Count
L/S DRS BLACKOUT TAPE ALIGN/FIT /FINISH(OPTION)/ISD	221	4
L/S 'A' POST TRIM TO HEADLINER FIT/FINISH	5645	4
QBUY TRANS TOP-OFF LEVEL(ROLLS BLOCK)	87711	4

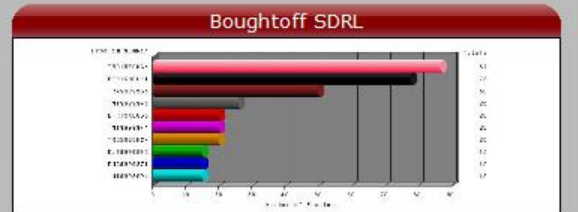
Newark 3



Problems Leaving Zone

Problem No.	Description	Count	Checklist
XCDD23WDE4	QBUY NAVIGATION SYSTEM	2	O1879L
ELE9997781	QBUY SRT4 AMP(026AA)IN VEHICLE	11	O1879L
EER4XX234Z	QBUY MANUAL DIESEL SHIFTER CABLE ROUTED	2	O1879L
ECDGPECSCN	QBUY GPEC MODULE PART SCAN VERIFY REQ'D	12	O1880P
DDR4XX234Z	QBUY BRAKES	13	TESTING

Plant: Sterling Heights Dept: 1 Shift: 1 Zone: 1 Rows:

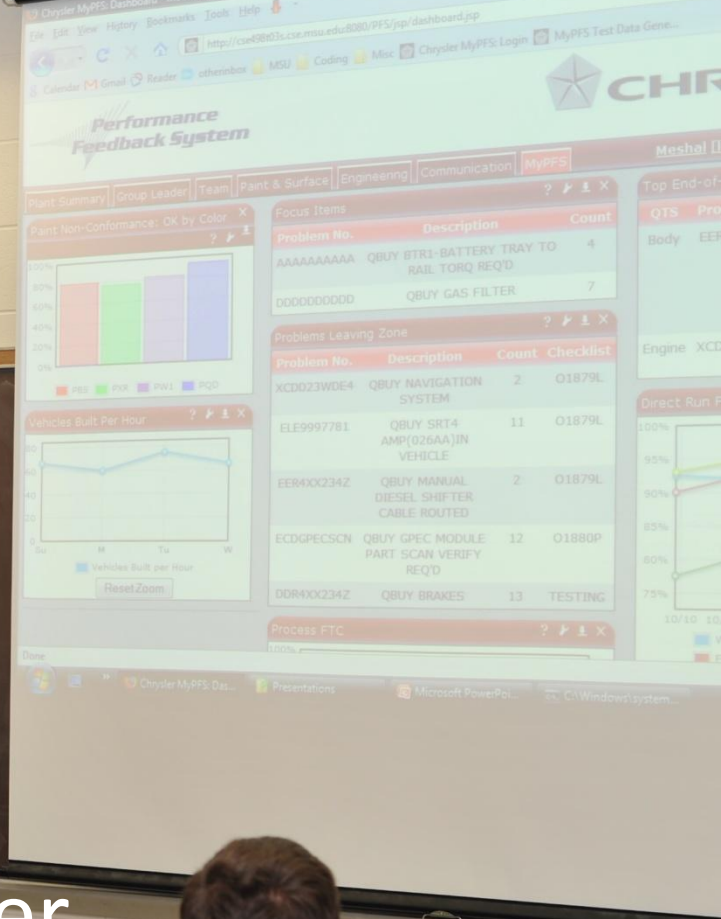


What's Next?

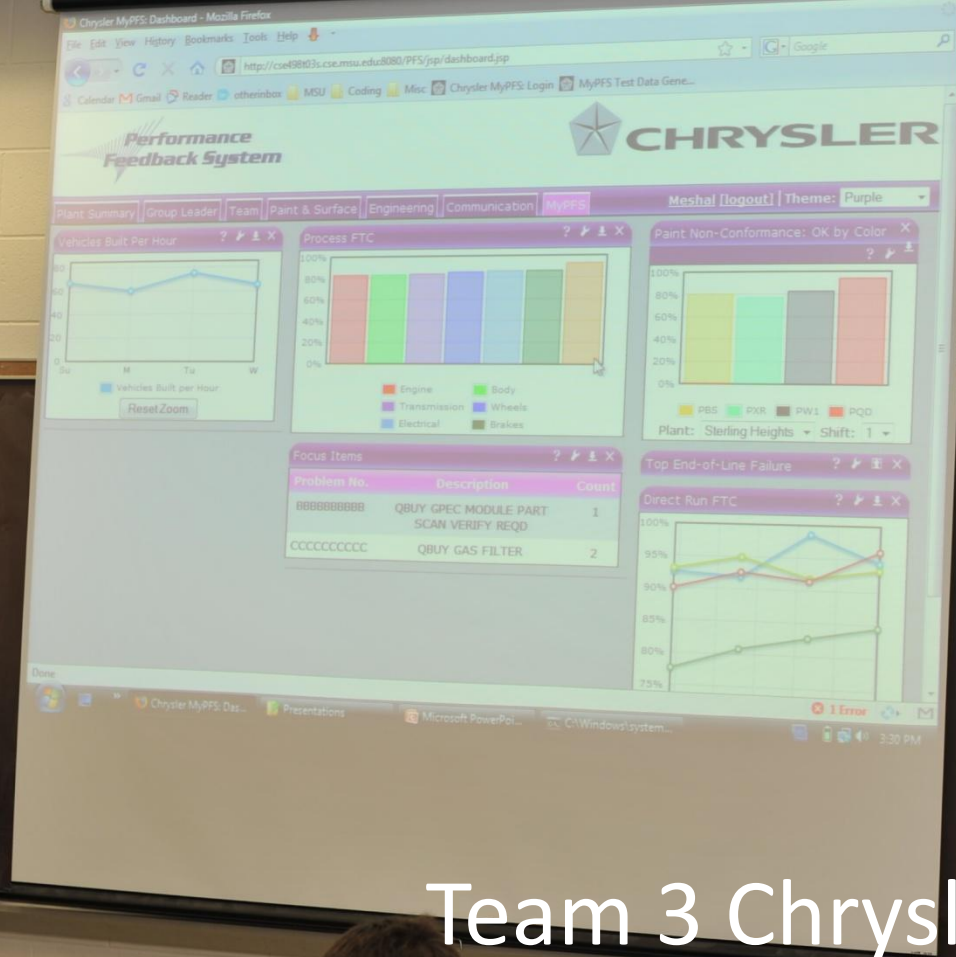
- User profiles
 - Module selection and location saved
 - Settings for modules saved
- Additional modules
 - 6 more modules scheduled for beta
- Improve cross-browser compatibility

6

Team 3 Chrysler
Alpha Demonstration



Team 3 Chrysler
Beta Demonstration



Team 3 Chrysler Beta Demonstration

Ford Motor Company

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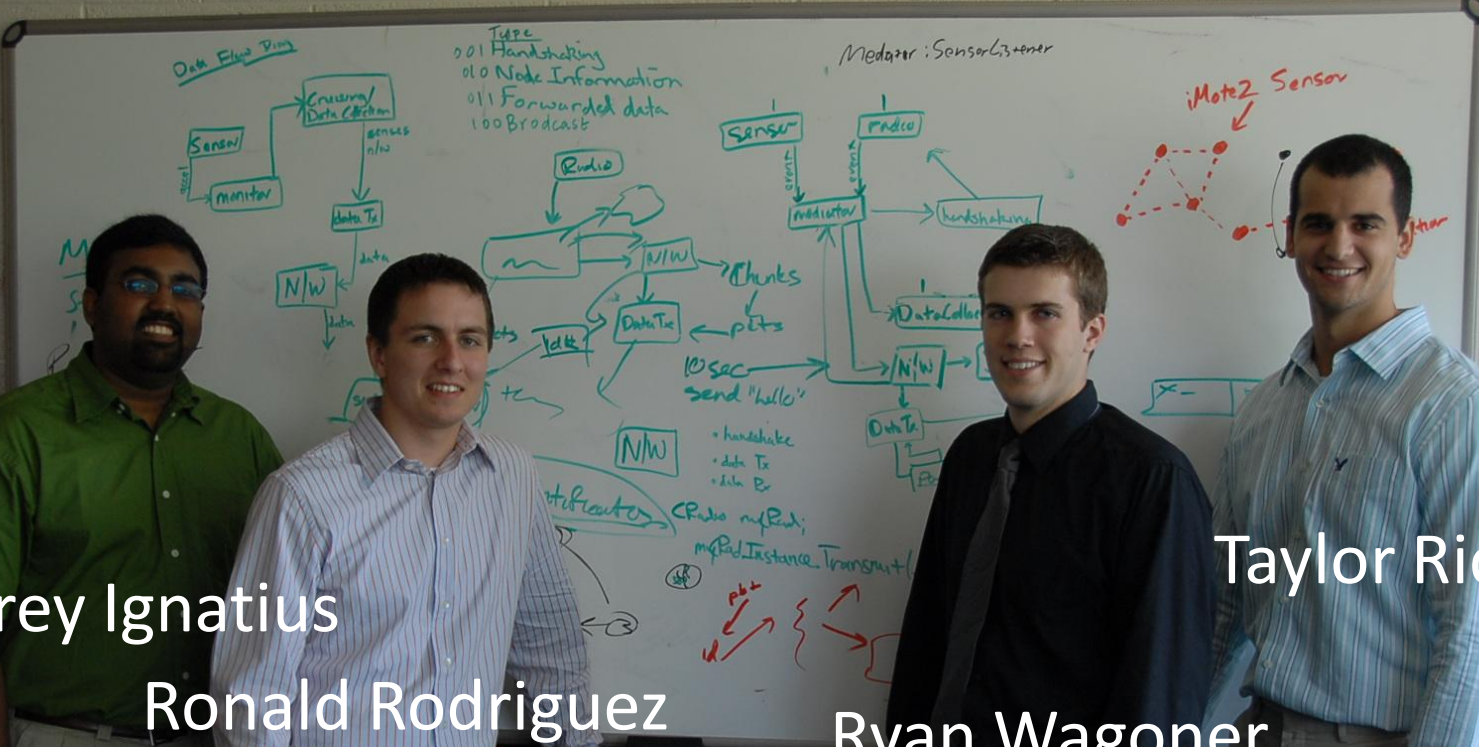
VOLVO



LINCOLN



GLOBAL SITES



Jeffrey Ignatius

Ronald Rodriguez

Ryan Wagoner

Taylor Rice

Team 4 Ford
Team Photo

Project Overview

Ford Test Drive

- Create Driver Profile Based On Test Drive
 - Capture Driver Information During Test Drive
 - Velocity, Acceleration, Deceleration, Cabin Temperature
 - Via Wireless Sensors
 - Create and Upload Drive Profile to Dealership Computers After Test Drive
 - View Profile with Web Interface
- Provide Real Time Location System (RTLS)
 - Location of Vehicles on Dealership Lot
 - Via Wireless Mesh Network
- Technologies
 - Crossbow iMote2 Wireless Sensors
 - Wireless Mesh Networks
 - .NET Micro Framework



S System Components

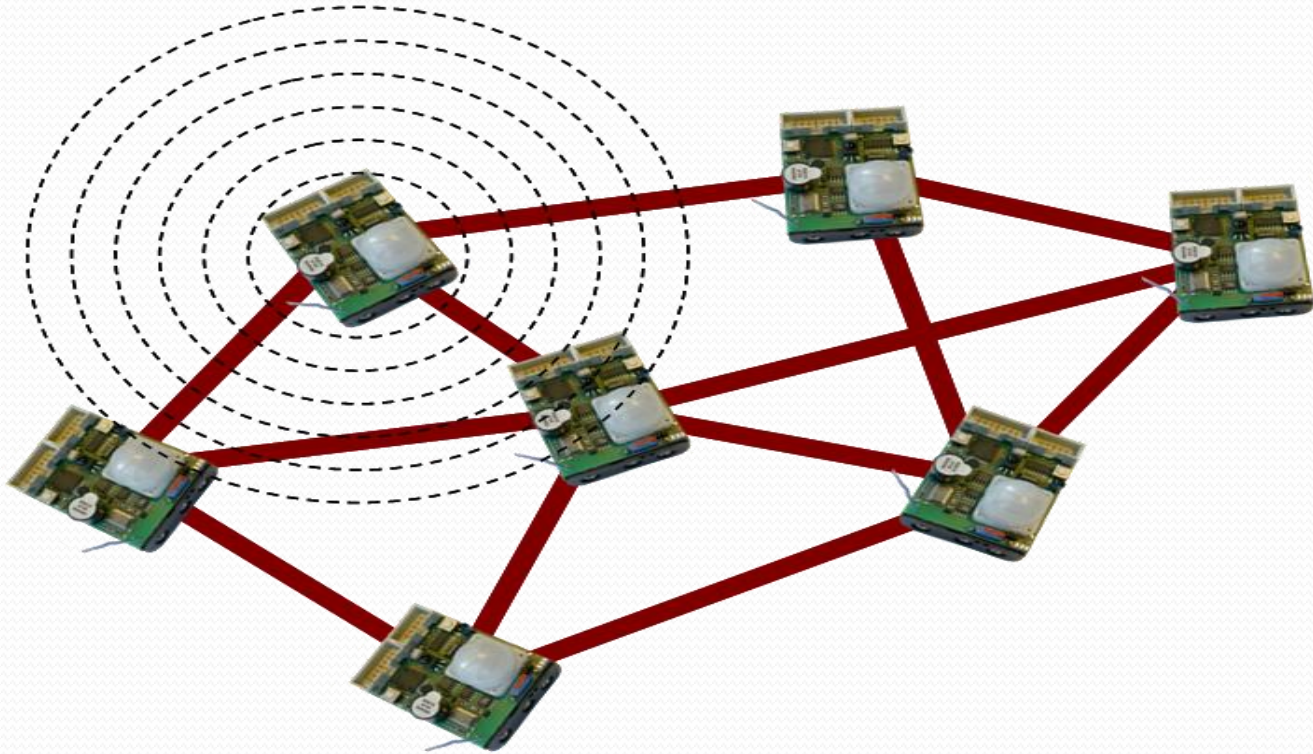
- Server Systems / Software
 - Windows Server 2003, Windows XP
 - Apache, MySQL
 - .NET Framework, .NET Micro Framework
 - C#, PHP, AJAX, Silverlight
- Development Systems / Software
 - Visual Studio 2005 SP1
 - Subversion Client Installed for Version Control

Team 4: Ford

Team 4 Ford
Technical Specification Presentation

Team 4 Ford

Architecture Illustrated



Team 4 Ford

Crossbow iMote2 Wireless Sensors



S Risks

- Risk 1 : Being able to accurately locate sensors.
 - Priority: Low/Medium
 - Difficulty: High
 - Mitigation: Research into previous attempts at locating mobile sensors
- Risk 2 : Providing useful analysis of received data
 - Priority: High
 - Difficulty: Medium
 - Mitigation: Contact with client to determine useful analytics.
- Risk 3: Learning the .NET / Micro Framework
 - Priority: High
 - Difficulty: Low
 - Mitigation: Learning a new programming language will not be hard or time consuming, as many characteristic of C++ are carried into C#.

Team 4: Ford



Team 4 Ford
Technical Specification Presentation

FORD TEST DRIVE - DRIVER PROFILE

FIRST NAME:

John

MIDDLE INITIAL:

D

LAST NAME:

Jacobson

ADDRESS:

145 North Main St

ADDRESS LINE 2:

CITY:

Huntsville

STATE:

Alabama

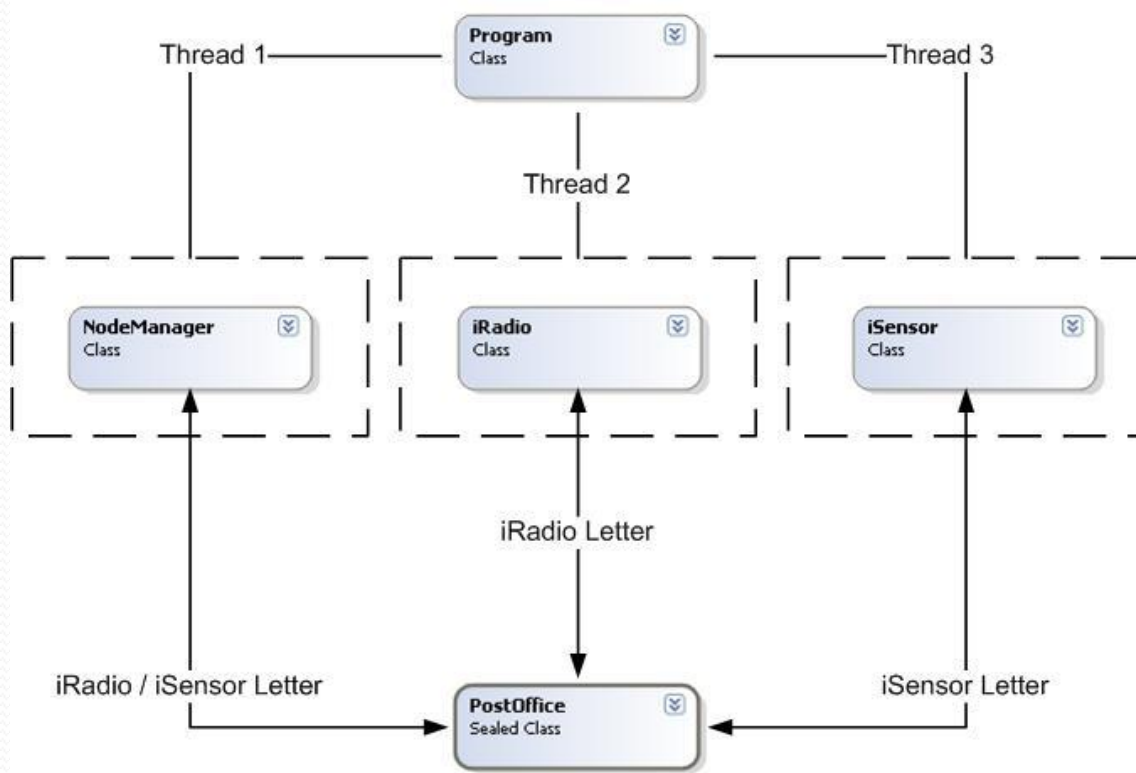


Project Overview (2 of 2)

- Driver Profile
 - Driver Can Fill Out Forms Online Before Visit
 - Link in Database to Specific Test Drive
- Web Portal
 - Data Collected is Accessible to Ford Employees
 - Provides Charting and Graphing Capabilities
 - Customer Specific and Aggregate Data

Team 4 Ford
Alpha Demonstration

Thread Management

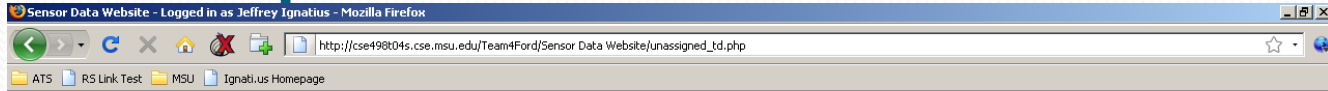


- Red(blink): Sending Data Packet
- Green(blink): Receiving Data Packet

Team 4 Ford
Alpha Demonstration

Team 4 Ford

Dealership Website



Ford Motor Company

Welcome Jeffrey Ignatius

[Home](#)

Car Information

- > [Add New Car](#)
- > [View/Edit Cars](#)

Driver Profile

- > [Add New Driver Profile](#)
- > [View/Edit Driver Profiles](#)

Test Drive

- > [Schedule Test Drive](#)
- > [View Unassigned Test Drives](#)
- > [View Test Drive Data](#)

Employees

- > [Add Employee](#)
- > [View/Edit Employees](#)
- > [Change Password](#)

[Logout](#)

List of Unassigned Test Drives								
Sensor ID	Car	Driver	Test Drive		Average			Edit
			Start Time	End Time	Accel	Decel	Temp	
100	Volkswagen Passat	Ignatius, Jeffrey	Oct 16, 2008 10:00am					Edit
133	Toyota Camry	Wagoner, Ryan D	Oct 22, 2008 4:30pm					Edit
100	Volkswagen Passat	Smith, John M	Oct 26, 2008 4:00pm					Edit



Search

HOW IT WORKS

What did you do with your old computers?

Are they in storage? In the trash? IBM has a better idea.

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What did you do with your old computers?



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- Developers

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- Medium business
- Journalists

Green IT for mid-size businesses



Brad Topol

IBM Client



Michael Haine

Tom Castellani

Andrew Daniels

Richard Schultz

Team 5 IBM
Team Photo

Project Overview

FixPack Publishing Tool Enhancements

- Existing FixPack Publishing Tool
 - Enables Bulk Publishing of Fix Packs
 - To IBM's Electronic Fix Delivery (EFD) Infrastructure
 - Typically 30 to 50 Fix Packs Per User Session
 - Semi-Automated
- FixPack Enhancements
 - Eclipse-Based Rich Client
 - Web Service For Product System Requirements
 - HTTP-Based Methodology for Dynamic Update to Support New Products
- Technologies
 - Java
 - XML
 - Eclipse Standard Widget Toolkit (SWT)

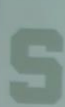
S Functional Specifications

- Extract metadata from current FixPack and reformat it to a standardized XML format.
- Individual fields of existing Fixpack metadata can be modified after initial creation.
- Create a user interface which allows for the user to quickly edit FixPacks metadata.
- Allow users to bulk publish thirty to fifty FixPacks quickly and efficiently via FTP.

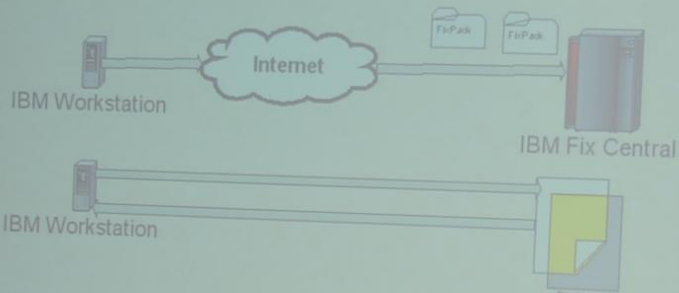
Team 5: Team IBM

Team 5 IBM

Technical Specification Presentation



Architecture Illustrated



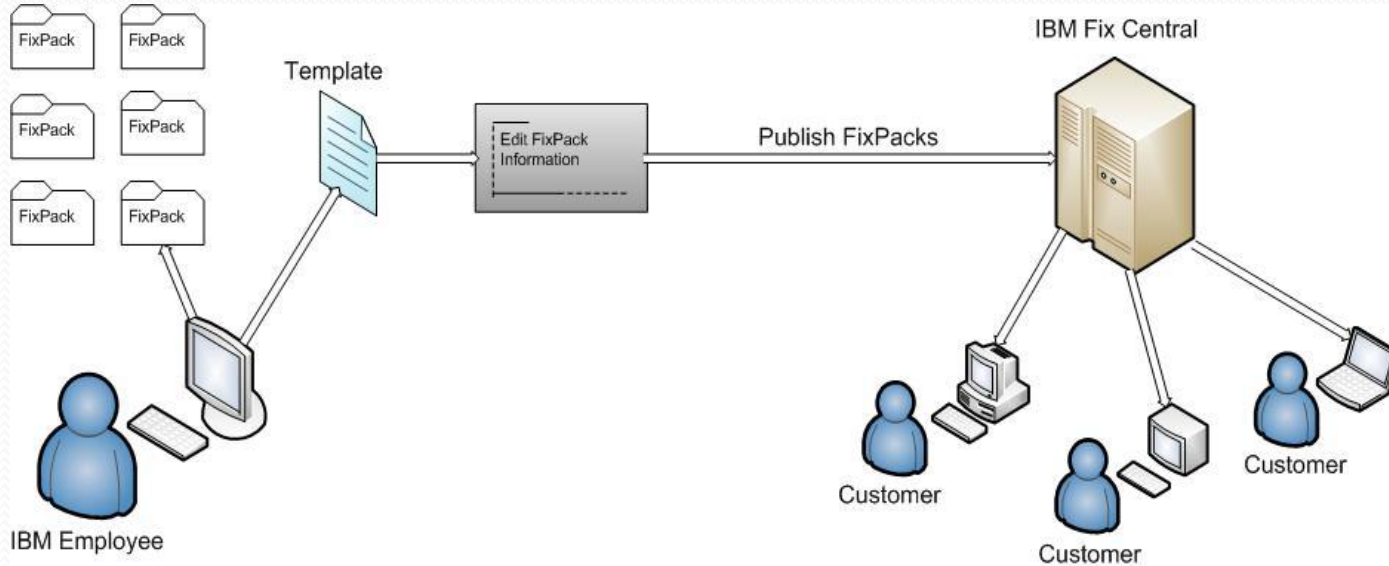
Team 5: Team IBM

Team 5 IBM

Technical Specification Presentation

Team 5 IBM

Architecture Illustrated

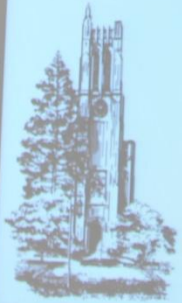




Team 5 IBM

Technical Specification Presentation

Alpha Demonstration FixPack Publishing Tool



Team 5: IBM
CSE 498, Collaborative Design

Andrew Daniels
Tom Castellani
Mike Haine
Richard Shultz

Department of Computer Science and Engineering
Michigan State University

Fall 2008

Team 5 IBM
Alpha Demonstration

Product Information | Release Information | Email

Brand:

Product:

Product:

Ext. Info URL:

Misc. Attributes

Schema Type: Schema Version:

APARs Source:

PK26723	PK26725	PK26726	PK27216	PK27217
PK27218	PK29929	PK31801	PK38697	PK44374
PK99990	JDK61015			

APAR IDs:

Fix Information:

Fix ID:

Fix Type:

Fix Name:

Fix:

Fix Status:

File Information:

File Type:

IncludedAsPartOf:

Local File Name:

External File Name:

Description:

Descriptor:

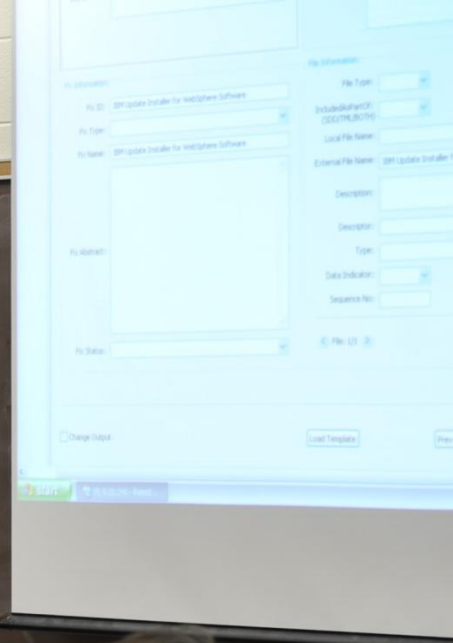
Type:

Data Indicator:

Sequence No:



WORK for students
517-353-1700 form
\$14.25 base app!



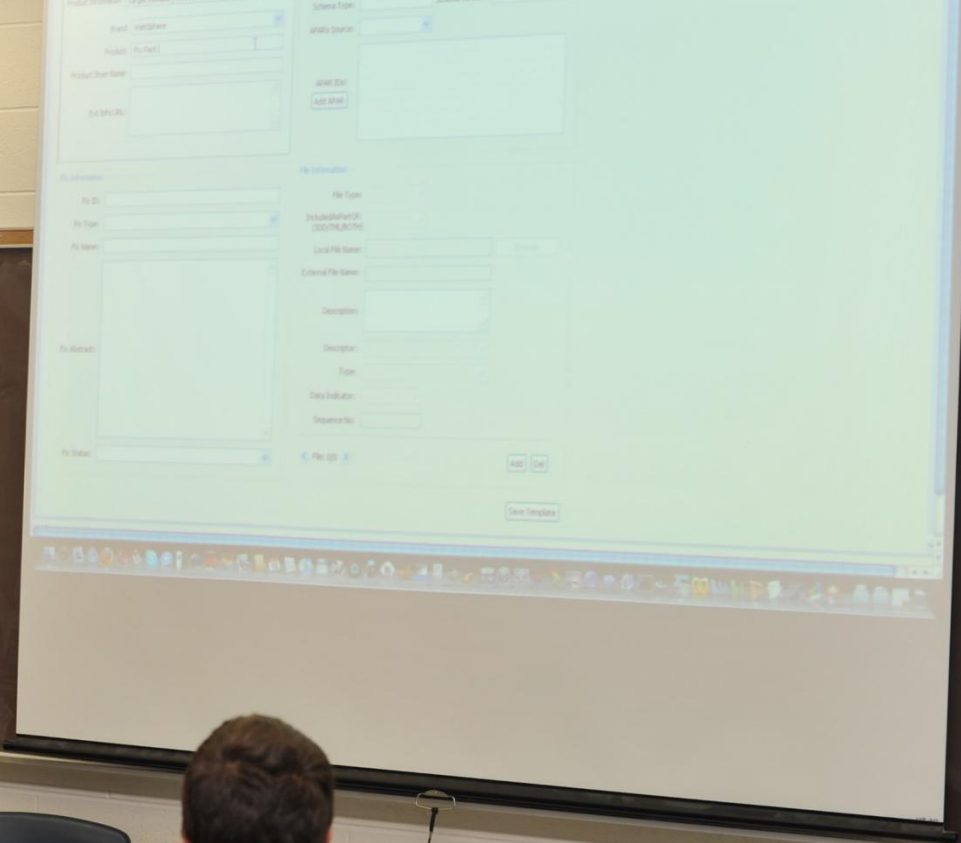
Team 5 IBM
Alpha Demonstration

What's New?

- Added:
 - Changed Toolbar Menu to File Menu.
 - Modify Existing FixPack View.
 - Create Template View.
 - Modify Template View.
 - File List on the Side.
 - Modality During Publishing.
 - Ability to Add Additional Files.

3

Team 5 IBM
Beta Demonstration



Team 5 IBM
Beta Demonstration

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Chris Mönosmith

Bruno Sommer

Mathew Mason

Tom Aléxander

Andrew Keller

Team 6 Microsoft

Team Photo

Team 6 Microsoft

Project Overview

Application Health Monitoring Portal

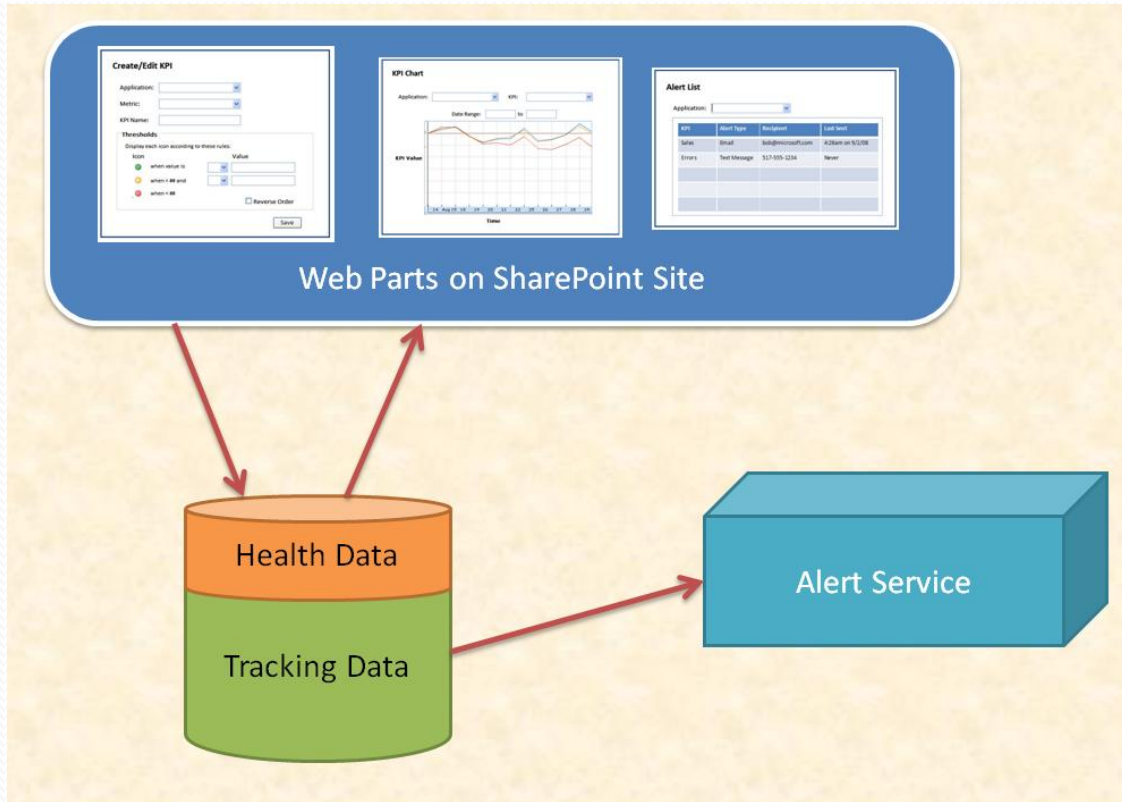
- Portal
 - Windows SharePoint Services-Based
 - Plugs Into .NET Workflow Foundation & Windows Communication Tracking Store
 - Provides Health Monitoring and Management of .NET Applications
- Components
 - Metrics Databases (New and Existing)
 - System to Calculate Metrics
 - Web-Based Portal
- Technologies
 - Silverlight
 - Windows SharePoint Services Framework
 - C#
 - .NET Framework

The Microsoft logo is displayed in its characteristic bold, italicized, sans-serif font. The word "Microsoft" is written in black, with a registered trademark symbol (®) at the end.



Team 6 Microsoft
Technical Specification Presentation

Team 6 Microsoft Architecture Illustrated





S Risks

- Unfamiliarity with Silverlight and Sharepoint
 - The web page and associated web parts are to be designed using Silverlight and Sharpoint, yet we know little about those technologies.
 - Do research and tutorials to learn the technologies.
- .NET 4.0 does not exist yet
 - Our project is to be integrated with the as of yet unreleased group of technologies codenamed Project Oslo as part of .NET 4.0... which isn't released yet and therefore we don't have access to it.
 - Unknown. Hopefully having a common test data schema will be enough.

Team 6: Microsoft

Team 6 Microsoft
Technical Specification Presentation

Create/Edit Key Performance Indicator

Application:

Metric:

KPI Name:

Thresholds

Display each icon according to these rules:

Icon		Value
	when value is	<input type="text"/>
	when < ## and	<input type="text"/>
	when < ##	

Reverse Order

Save

KPIEditor Web Part

Application:

KPI:

KPI Name:

Data Type:

>

>



Submit KPI

Create Alerts Web Part

Application:

KPI:

Alert Type:

Alert Value:

Add Alert

KPI List

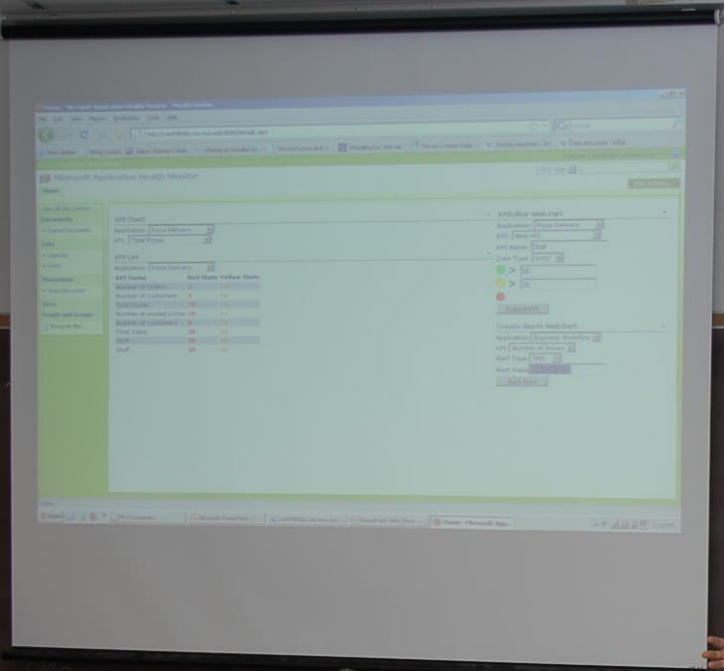
Application:

KPI Name	Red State	Yellow State
Number of Orders	2	10
Number of Customers	3	10
Total Pizzas	10	15
Number of wasted pizzas	28	41
Number of Customers	8	10
Total Sales	30	50
Stuff	30	50
Stuff	30	50



Team 6 Microsoft Alpha Demonstration

KPI Name	Pizza Delivery	And State Yellow State
Number of Orders	2	100
Number of Customers	1	100
Total Pizzas	100	100
Number of wasted pizzas	20	10
Number of Customers	0	100
Total Sales	100	100
Staff	100	100
Staff	10	10



Team 6 member presenting the software to the audience.

Team 6 member standing next to the presenter.

Team 6 Microsoft Alpha Demonstration

Audience member in the foreground, left side.

Audience member in the foreground, center.

Audience member in the foreground, right side.

Audience member in the foreground, far right.

new version



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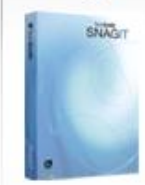


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User Research and Usability Testing

Media Hosting



Derek Gebhard

Scott Lamparski

Keith Barber

Caitlin Nelson

Team 7 TechSmith
Team Photo



Project Overview

- Cloud Powered Media Search Service API
- Amazon Cloud Computing
- Video Splitting
- Optical Character Recognition
- Server Controller
- Website

Team 7: TechSmith

2

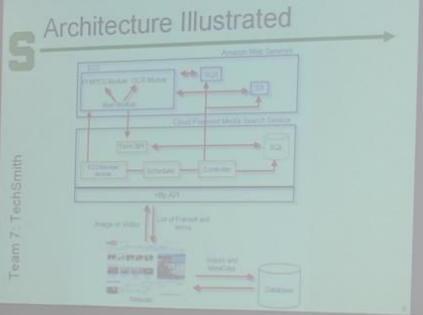
Team 7 TechSmith
Functional Specification Presentation

Project Overview

Text Recognition Using Cloud Computing

- Existing Computer Screen Capture/Recording Software
 - Text on Screen Stored as Image (Pixels)
 - Resulting Capture/Recording Not Searchable for Text
- Create Searchable Screen Capture/Recording System
 - Use Optical Character Recognition (OCR)
 - Recognize Text
 - Search for Text in Captures/Recordings
 - Use Cloud Computing (Internet Computers)
 - Perform Optical Character Recognition
 - Scale Number of Internet Computers Based on Amount of Text in Capture/Recording
- Technologies
 - C++, Open Source
 - Amazon EC2 Cloud Computing, Amazon S3 Storage
 - Tesseract, FFmpeg, ImageMagick





Two men are standing at the front of the classroom. The man on the left is wearing a green polo shirt and is positioned behind a wooden podium with a laptop. The man on the right is wearing a plaid shirt and light-colored pants, gesturing with his hands as if speaking.

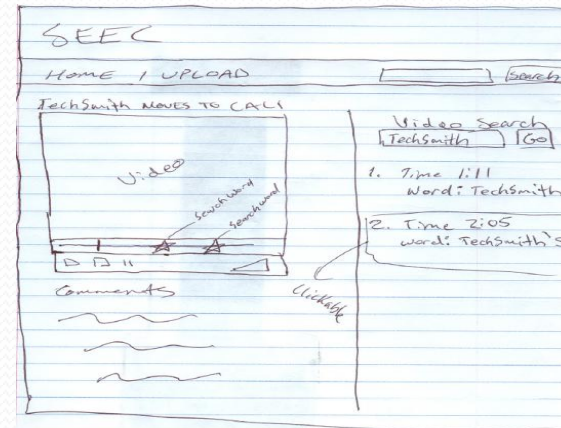
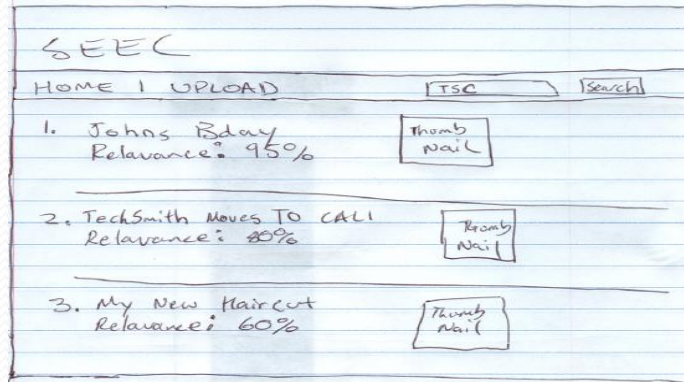
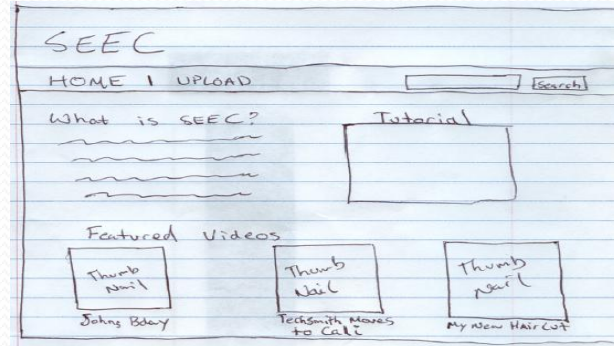
Two women are standing at the front of the classroom. The woman on the left is wearing a black top and has her hands on her hips. The woman on the right is wearing a blue and white plaid suit and is looking towards the audience.

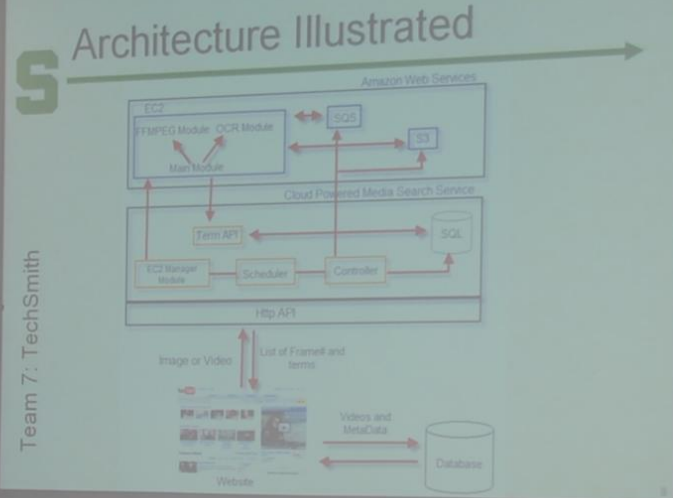
Team 7 TechSmith
Functional Specification Presentation

Team 7 TechSmith

Functional Specifications

- Website
 - Home Page
 - Upload Page
 - Search Page
 - Video Page

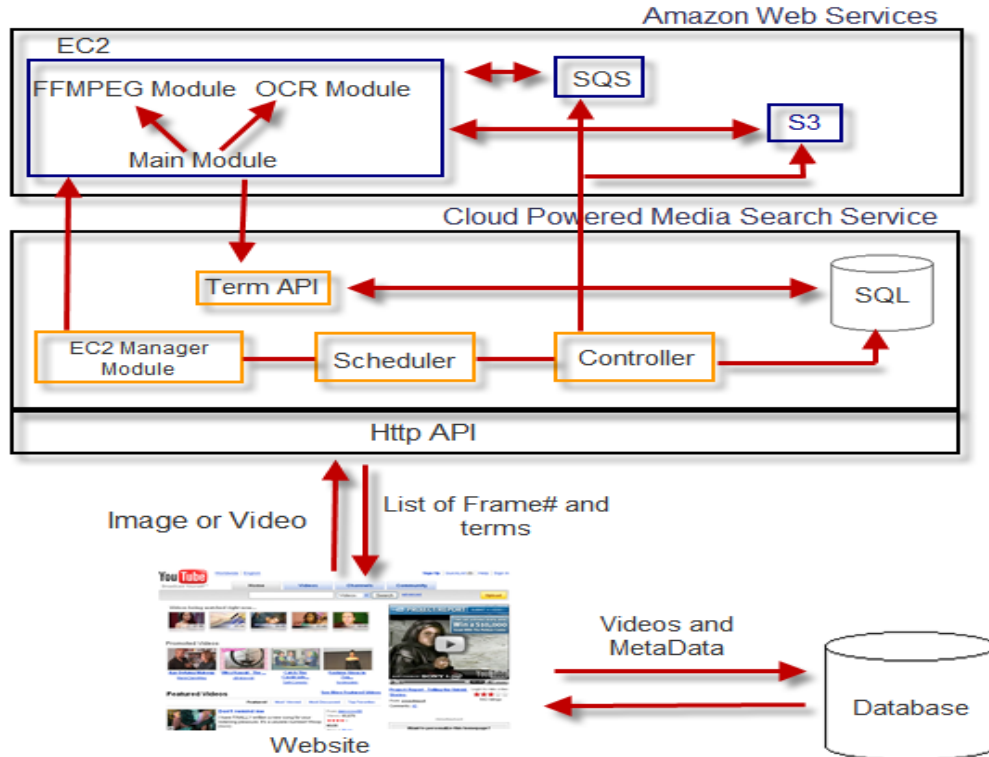




Team 7 TechSmith
Functional Specification Presentation

Team 7 TechSmith

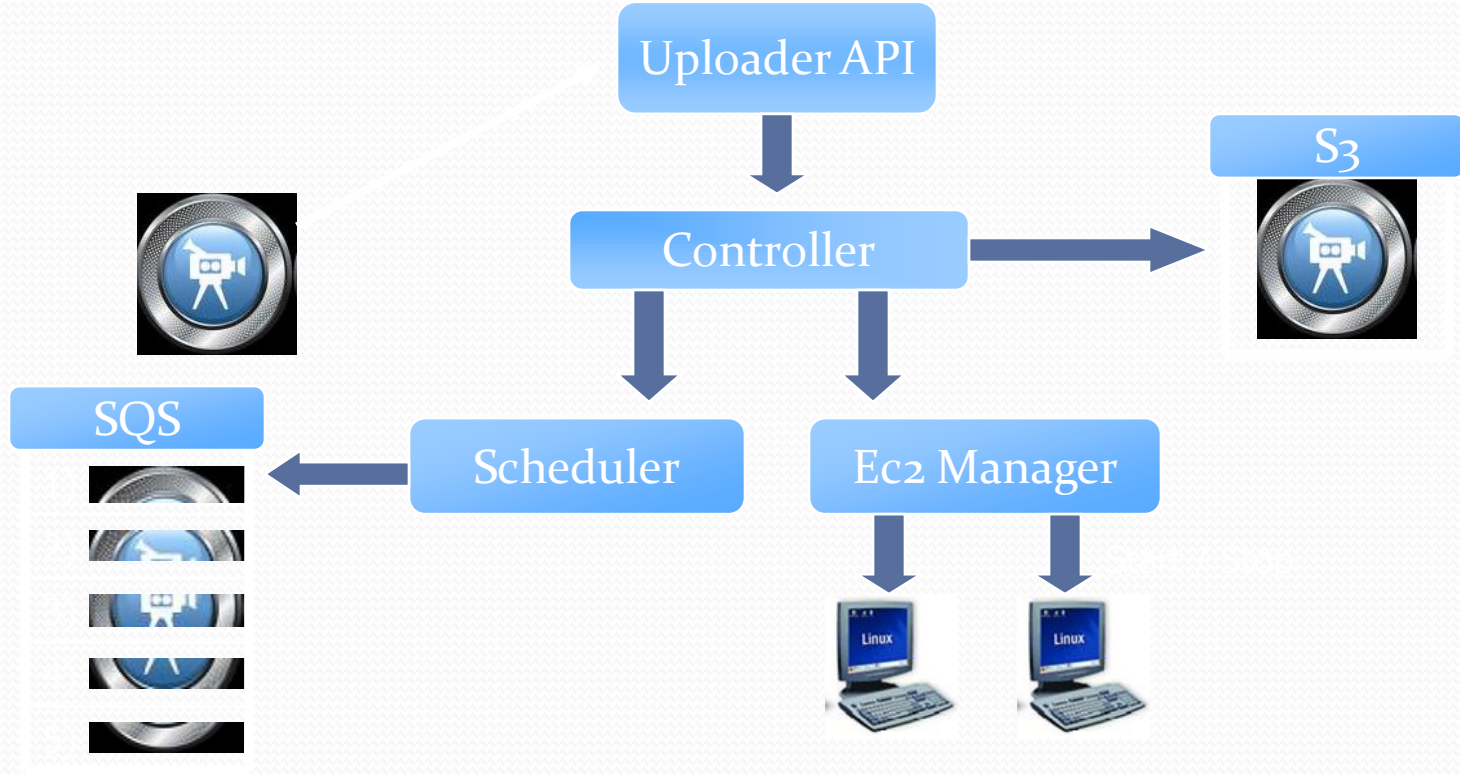
Architecture Illustrated



- OCR
 - No experience and no idea how well it will work
 - Early development
- Performance
 - Processing OCR might take a while
 - Developing parallel strategy
- Language and Library interoperability
 - Multiple libraries and languages will interact
 - Modular design and research
- Flash / Silverlight
 - Client side web code needed for custom player
 - Research and previous TSC project

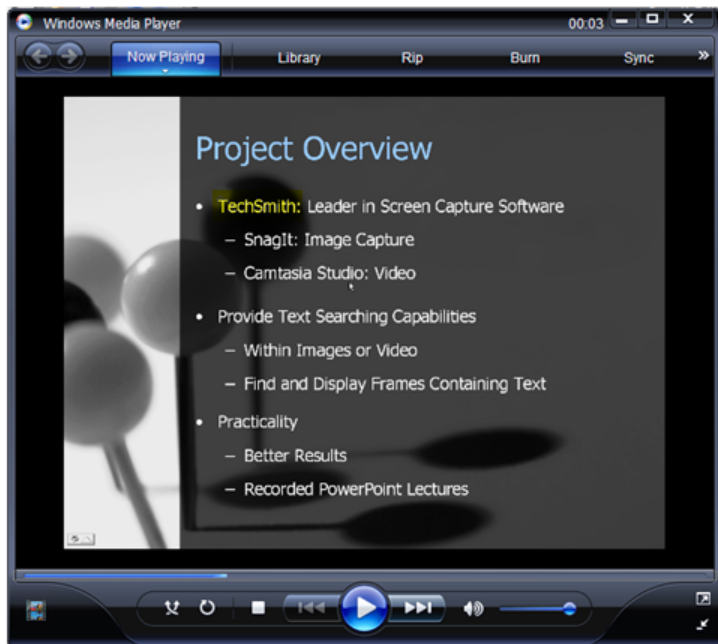
Team 7 TechSmith Alpha Demonstration

Team 7 TechSmith Service



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TechSmith Video



Video Search

Results:

1. Time: 1:11

Word: TechSmith:

2. Time: 2:30

Word: TechSmith's



```
video_data> select * from video;
videoId | videoname | httpurl | clientid | batched | priority
-----|-----|-----|-----|-----|-----
1 | Presentation.avi | | | | f |
(1 row)

video_data>
```

Demo Link

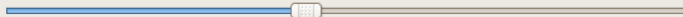
Team 7 TechSmith Alpha Demonstration



Presentation2.avi

Movie Edit View Go Sound Help

- Amazon Cloud Computing
 - Amazon EC2
 - Run video splitting code
 - Run OCR code on image
 - Amazon S3
 - Store Videos
 - Store Images
 - Amazon SQS
 - Job list

Time: 

Playing 0:01 / 0:13

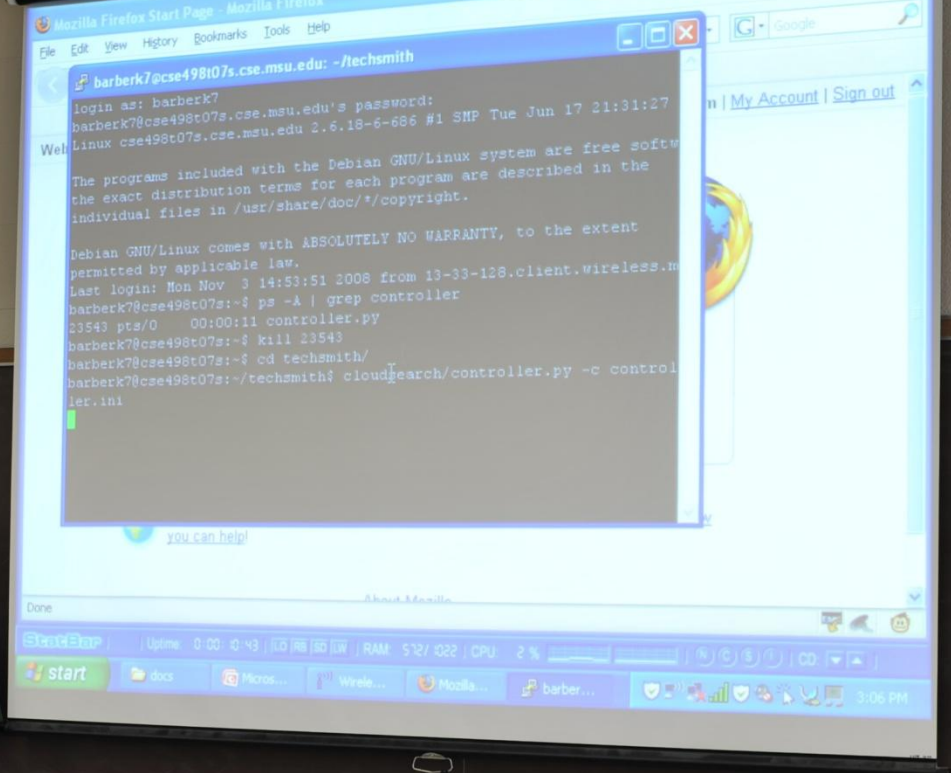
lampars1@cse498t07s.cse.msu.edu: /home/nelso315

```
File Edit View Terminal Tabs Help
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <meta name="ocr-capabilities" content="ocr_line ocr_page" />
    <meta name="ocr-langs" content="en" />
    <meta name="ocr-scripts" content="Latn" />
    <meta name="ocr-microformats" content="" />
    <title>OCR Output</title>
  </head>
  <body>
    <div class="ocr_page" title="image images/frame-001.png; bbox 0 0 1024 768">
      <span class="ocr_line" title="bbox 9 736 67 760">@l</span>
      <span class="ocr_line" title="bbox 109 75 648 118">&#8226;Amazon Cloud Computing
    </span>
      <span class="ocr_line" title="bbox 179 153 411 182">Amazon EC2</span>
      <span class="ocr_line" title="bbox 210 220 579 252">&#183;Run video splitting co
de</span>
      <span class="ocr_line" title="bbox 210 281 579 313">&#183;Run OCR code on image<
/span>
      <span class="ocr_line" title="bbox 179 389 411 418">Amazon S3</span>
      <span class="ocr_line" title="bbox 210 455 480 480">&#183;Store Videos</span>
      <span class="ocr_line" title="bbox 210 516 480 548">&#183;Store Images</span>
      <p class="ocr_par">
      <span class="ocr_line" title="bbox 179 624 411 654">Amazon SQS</span>
      <span class="ocr_line" title="bbox 210 690 579 715">&#183;Job list</span>
      </p>
    </div>
```


Cloud Computing

- Computationally Intensive
 - Challenge: Must Apply OCR to Many Frames
 - Approach: Use Cloud Computing
- Amazon Cloud Computing
 - EC2: Virtual Machine
 - S3: Storage
 - SQS: Queue System

Team 7 TechSmith
Beta Demonstration



Team 7 TechSmith
Beta Demonstration



Team 7 TechSmith
Client Meeting at TechSmith



Team 7 TechSmith
Client Meeting at TechSmith



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 - ▶ The Toro Company



Highlights

Toro Worldwide

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Dealer/Distributor Locator

Where to Buy, Service or Rent Your Toro

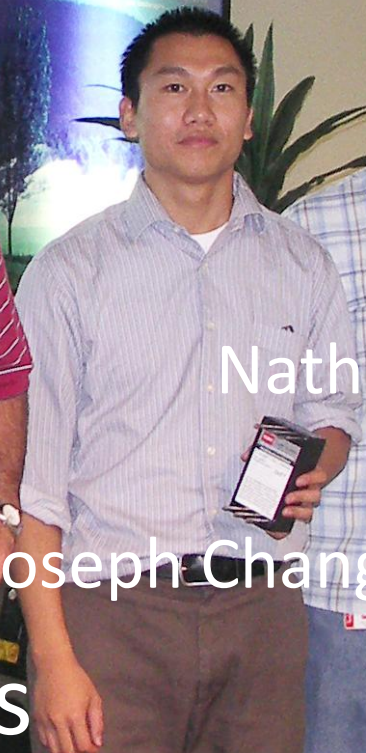
- ▶ USA or Canada
- ▶ Toro Worldwide



Rick McClure



Jason Hill



Joseph Chang



Nathan Fujimoto

Toro Clients



Brian Walsh

Brett Lesnau

Eric Jensen

Jacob Denzer

Team 8 Toro
Team Photo

Project Overview

GolfVision Interface for Turf Guard

- Existing Turf Guard System
 - Wireless Soil Monitoring (for Golf Courses)
 - Buried Sensors, Repeaters, Base Station, and User Interface
 - Data Includes Moisture, Temperature, and Salinity Every 5 Minutes
- Create Searchable Screen Capture/Recording System
 - Used by Course Superintendent
 - Communicates with Sensors, Repeaters, and Database
 - Provides Graphical Visualization of Soil Conditions
 - Allows User to Modify Database Settings and Data
- Technologies
 - C# / .NET
 - Networking, Databases
 - Toro TG2 Dual Level Sensors, Turf Guard Pedestal Repeaters



Count on it.

S Project Overview

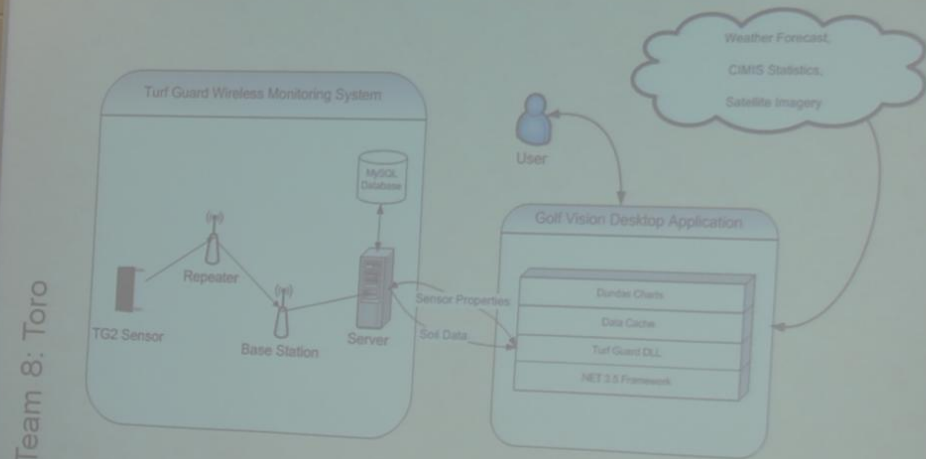
- Our desktop application will have at least the same functionality as the existing web based interface. It will cache data for higher performance.
- The user interface needs to be easier to use than the existing web interface.
- We are to create a DLL which does everything related to communication with a server. This DLL will be used by our desktop application and an unreleased Toro software suite.
- The Turf Guard sensor network and database schema already in place.

Team 8: Toro



Team 8 Toro
Technical Specification Presentation

S Architecture Illustrated

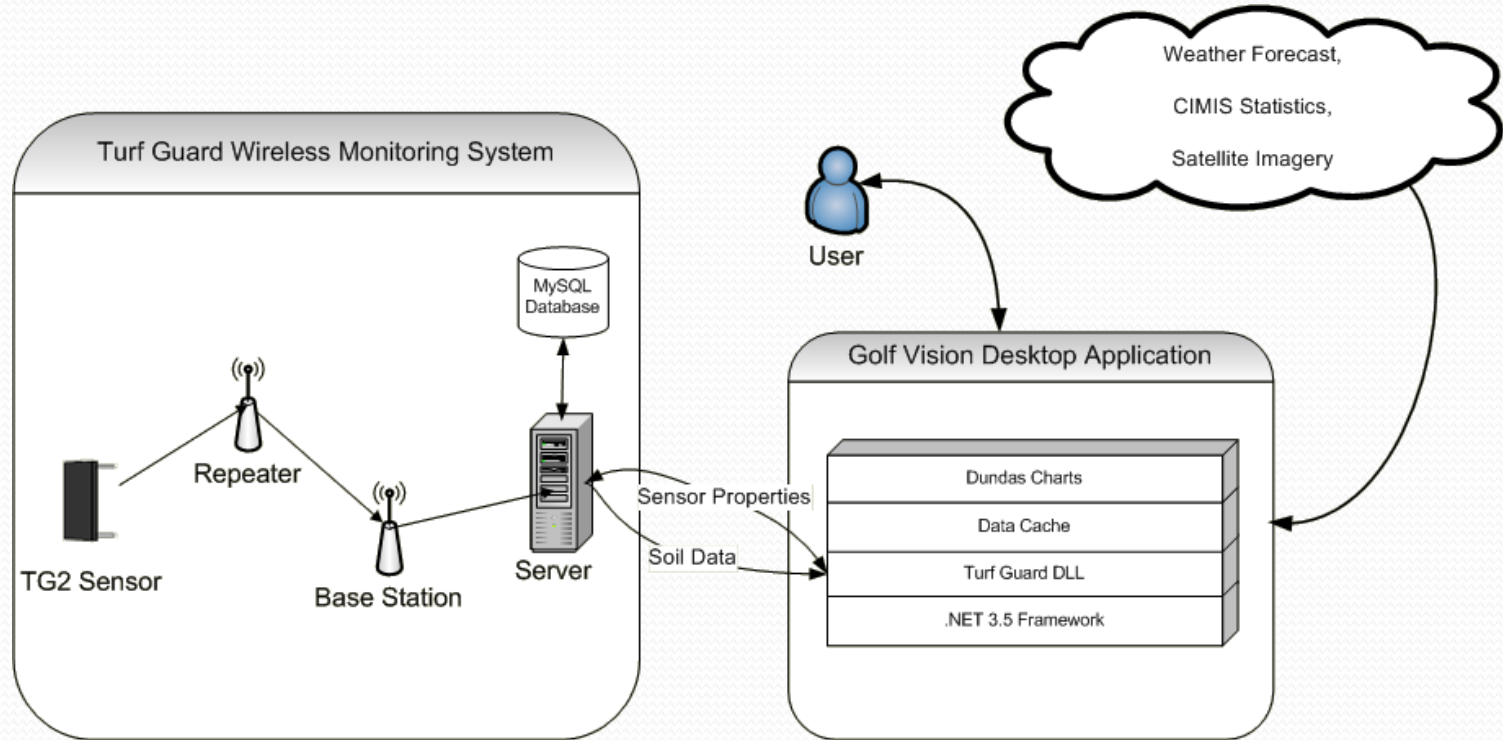


Team 8 Toro

Technical Specification Presentation

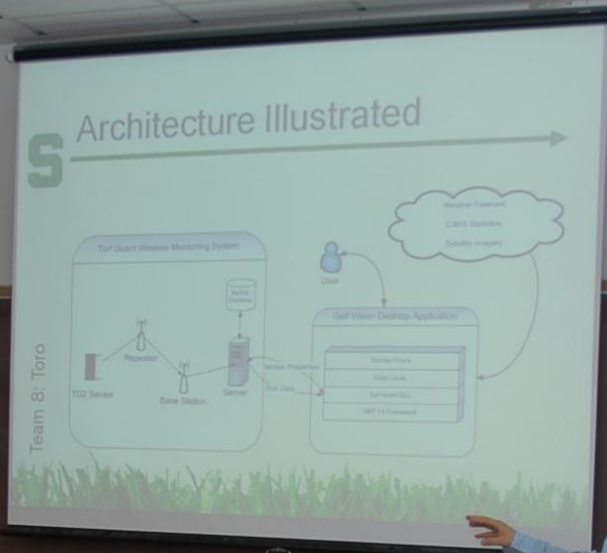
Team 8 Toro

Architecture Illustrated



A photograph of two men standing in a classroom. The man on the left is wearing a dark blue button-down shirt and is gesturing with his hands as if speaking. The man on the right is wearing a maroon polo shirt and is looking towards the first man. In the foreground, the back of a person's head is visible. The background consists of a whiteboard on the left and a chalkboard on the right.

Team 8 Toro
Technical Specification Presentation



Team 8 Toro
Alpha Demonstration



- Hole 1
- Hole 2
 - Greens
 - Front Right
 - Back
- Hole 3
- Hole 4
- Hole 5
- Hole 6
- Hole 7
 - Greens
 - Back Centre
 - Right
 - Right
 - Middle
- Hole 8
- Hole 9
- Hole 10
- Hole 11
- Hole 12
- Hole 13
- Hole 14
- Hole 15
- Hole 16
- Hole 17
- Hole 18
- Hole 19
- Hole 20

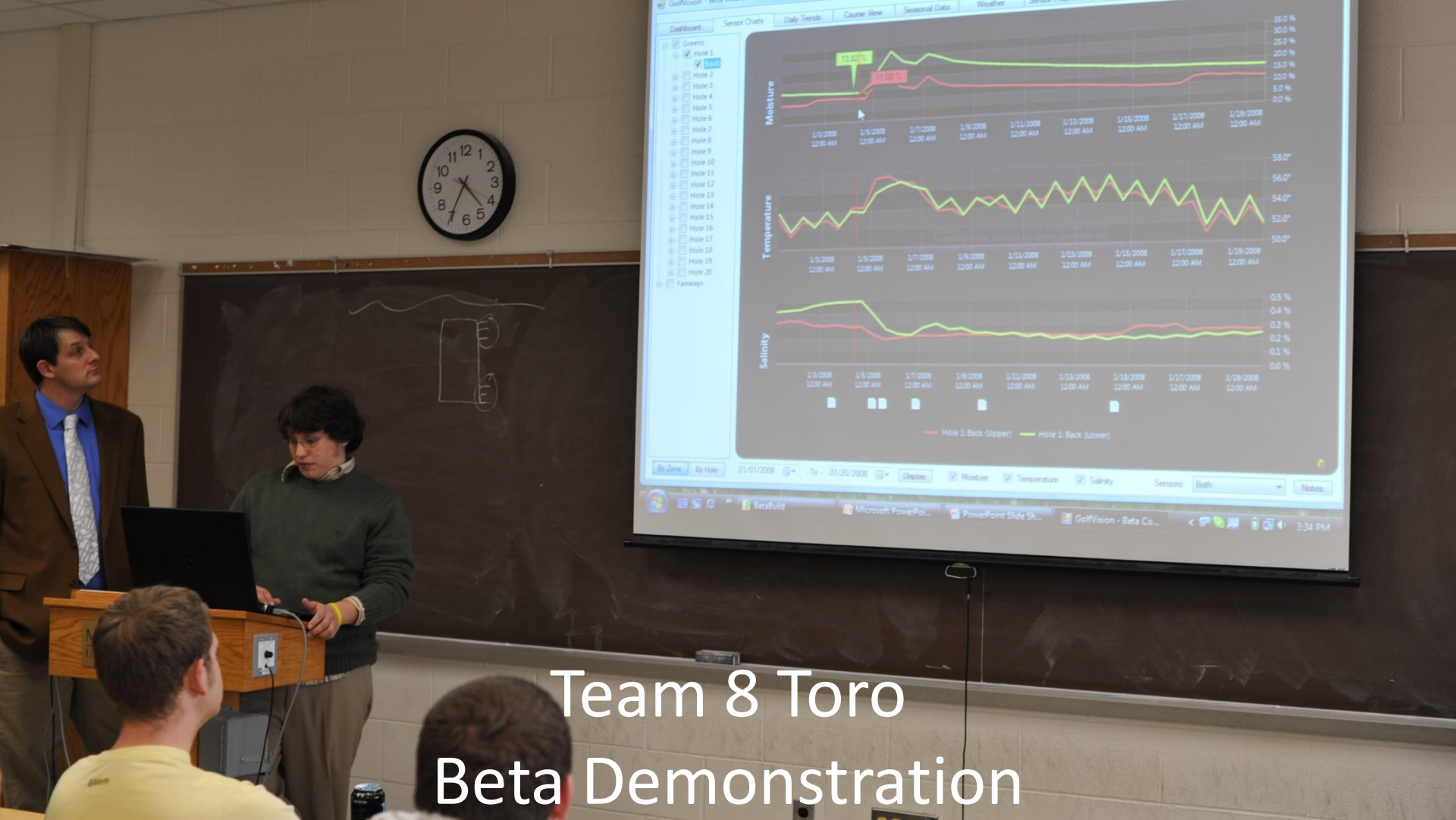


Hole 7: Right Upper level
 Hole 7: Right Lower level
 Hole 7: Middle Upper level
 Hole 7: Middle Lower level
 Hole 2: Front Right Upper level
 Hole 2: Front Right Lower level



Team 8 Toro Alpha Demonstration





Team 8 Toro
Beta Demonstration



Team 8 Toro Beta Demonstration

The Computer Science Senior Capstone Experience

CSE498 Collaborative Design

Department of Computer Science and Engineering

Michigan State University

Fall 2008

Professor Wayne Dyksen

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The Computer Science Senior Capstone Experience

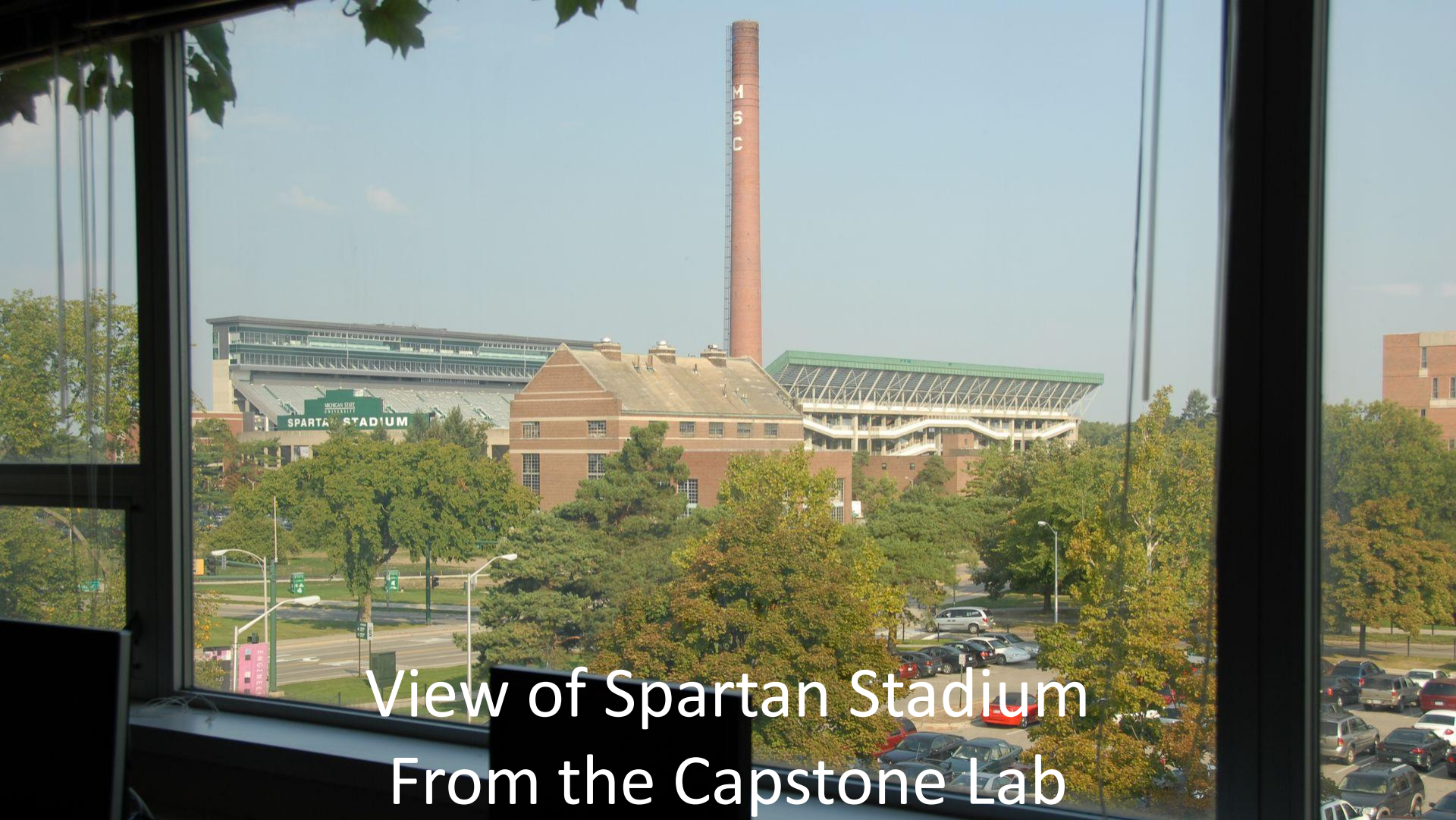
CSE498 Collaborative Design

Department of Computer Science and Engineering

Michigan State University

Fall 2008

Professor Wayne Dyksen



View of Spartan Stadium
From the Capstone Lab

- COVER PAGE
- Table of Contents
- ...
- ...
- ...

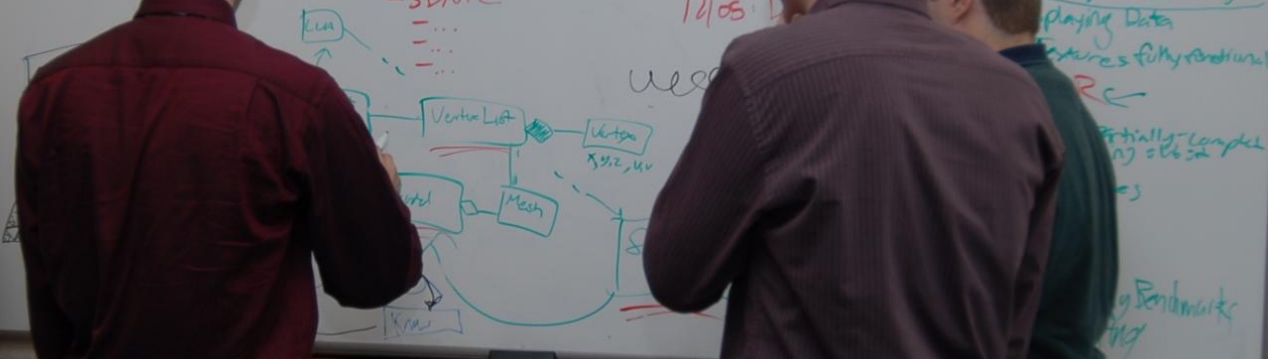
- Design Spec.

- General
- Data Flow
- GEUIFC
- ...
- ...
- ...
- 3DMC
- ...
- ...
- ...

- 11/20
- 11/24: TSR
- 11/27:
- 12/01:
- 12/05: D

Schedule

- 9/14: Today!!
- 9/15: Presentations



3DMC abctio Read
 GEUIFC, Sent Basic
 prototype forms back
 Complete to GUI
 playing Data
 features fully functional
 R ←
 Partially-Complete
 (n) = 66 in
 Benchmarking

The Capstone Lab

Team Boeing debates technical specifications.



The Capstone Lab
TA Ken Horne meets with Team Microsoft.



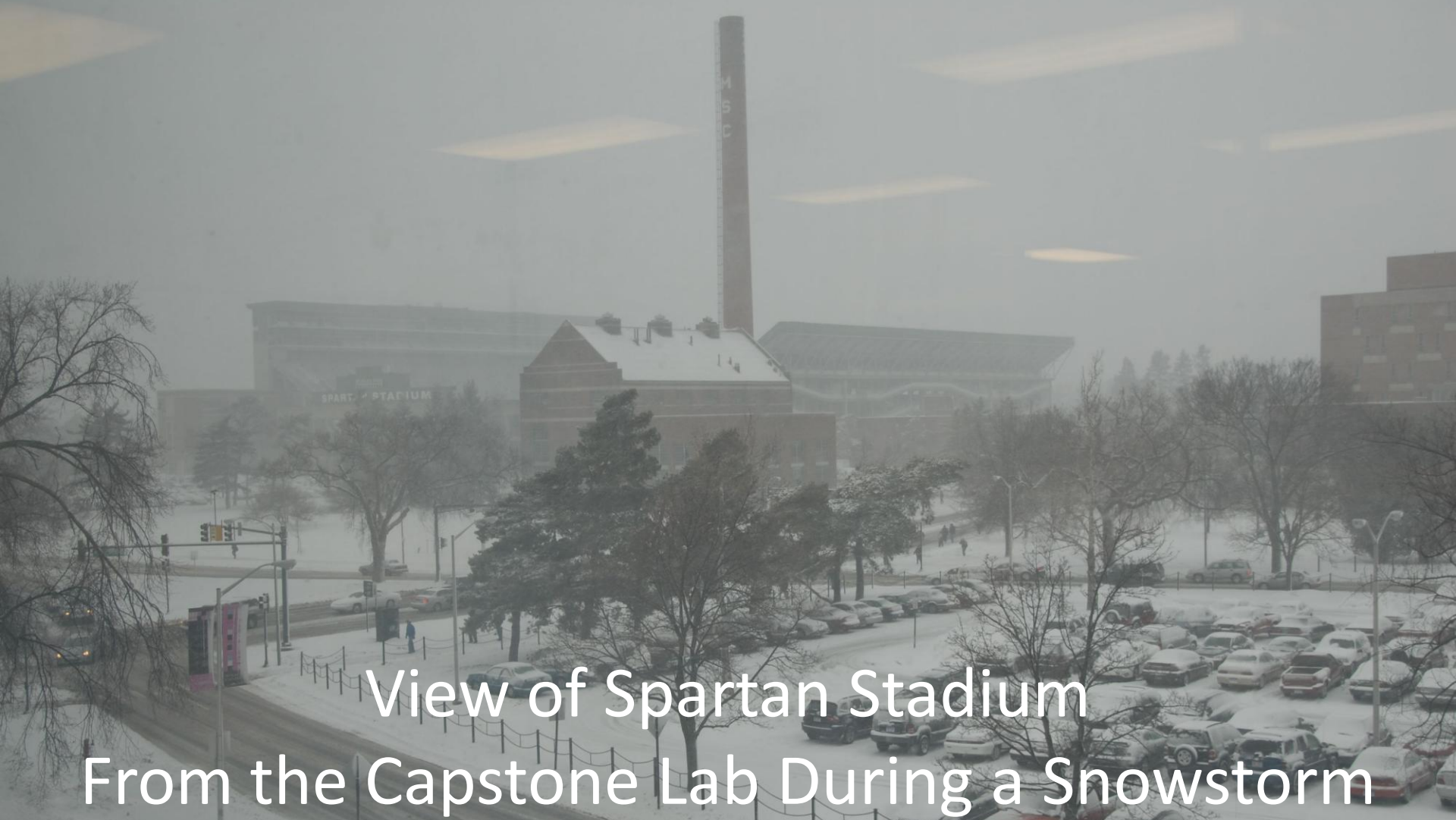
Team 7 TechSmith
Client Meeting at TechSmith



Team 7 TechSmith
Client Meeting at TechSmith



The Capstone Lab
Team members enjoy a view of Spartan Stadium.



View of Spartan Stadium
From the Capstone Lab During a Snowstorm

The Computer Science Senior Capstone Experience

Design Day Award Winners



Auto-Owners Exposition Award

Team TechSmith, Fall 2007

Rich Media Collaboration

Tom Lavoy, Brandon Turner, Jason Conley, Chris Harter
Presented by Bob Buchanan of Auto-Owners Insurance



Chrysler Praxis Award

Team IBM, Fall 2007

Processor Folding for Linux on POWER

Mark Bernum, Josh Detwiler, Ian Desilva (Not Pictured)

Presented by Rick Rose of Chrysler



Crowe Sigma Award Team Motorola, Fall 2007

Management Console for the Agent Framework

Dave Dylegowski, Drew Breider, Dave Robishaw, Calvin Pinsuwan

Presented by Kevin Ohl of Crowe Chizek



TechSmith Screencast Award

Team Sircon, Fall 2007

[GUI Configuration Tool for Interviews](#)

Ryan Abbott, Nick Vanhove, Ben Split, Mike Cracik

Presented by Dean Craven of [TechSmith](#)



Auto-Owners Exhibition Award

Team Boeing, Spring 2008

Poseidon Executor 2008

Nick Thrower, Steve Emelander, Scott Walenty, Tom Stark

Presented by Bob Buchanan of Auto-Owners Insurance



Chrysler Praxis Award

Team Ford, Spring 2008

Ford Sensor Showroom

Austin Drouare, Colin Nemchik, Devin Schnepf, Nathan Crosty

Presented by Karen Wrobel of Chrysler



STEPHANIE COOK
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MATT GRABOW
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ENGINEERING

Crowe Sigma Award

Team Toro, Spring 2008

WPF-Based Interface for Irritrol

Stephanie Cook, Dan Fiordalis, Matt Grabow
Presented by Kevin Ohl of Crowe Chizek



TechSmith Screencast Award

Team Microsoft, Spring 2008

[MUD: A Web-Based Multi-User Drawing Surface](#)

Rob Meyer, Sean Murphy, Kirsten Partyka, Charles Otto

Presented by Tony Lambert of [TechSmith](#)